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Taxonomies of Delinquents

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Overview

This essay describes the roles and importance of taxonomic research in delinquency. It is noted that taxonomic research has been largely neglected and there still is no taxonomy of delinquency that has achieved consensus in this field. However, recent theoretical developments suggest that four broad delinquency categories: psychopathic, sociopathic, neurotic, and normal/normative may offer the beginnings of a taxonomic structure for delinquency. The essay describes the major theorists and their arguments for these categories and reviews recent empirical taxonomic studies that are building support for these broad categories and providing evidence for subtypes within each category. A series of controversies is addressed, particularly the rejection of taxonomies by advocates of general theories of crime.

Significance of Taxonomies of Delinquency

Taxonomies play vital roles in all scientific disciplines, e.g., scientific communication, to develop "analytical categories" and scientific constructs for a discipline, to provide categories that can support inductive inferences and predictions based on categories, and so on. Some of the more critical purposes are as follows.

1. *Discover and identify the scientific objects of a discipline*: A critical responsibility of each discipline is to classify, organize, and map its domain of interest and the entities it studies. Taxonomies provide the exploratory mapping of a domain to identify and classify the scientific objects and conceptual categories that become the focus of interest for theoretical development, hypothesis development, and experiment. Biology, medicine, psychiatry, geology, and physics all expended enormous efforts to establish their taxonomies of scientific objects that are a focus for their theories and practice (e.g., biological species, plant types, geological strata, disease classes, elementary particles). In delinquency research, there is still no accepted taxonomy and all current taxonomic proposals are provisional and contested. In fact, some criminologists deny the existence of taxonomies in delinquency. Taxonomic research in delinquency thus has been neglected, while theory building has been prioritized. Warren (1971) reviews early classic taxonomies of delinquency and recent reviews are given by Moffitt (1993), Lykken (1995); Harris and Jones (1999); Brennan et al. (2008) and others.

2. *Taxonomy as a basis for scientific communication*: Taxonomies should provide a system of accurate reference and nomenclature for the scientific objects of a discipline. Thus, taxonomies often function as referential knowledge structures that are the basis of scientific communication and terminology. Rigorous and valid knowledge communication is exemplified by chemical and biological taxonomies. Such category terms should offer precise and systematic communication and mutual understanding, and minimize miscommunication and distortion of meanings between researchers and practitioners. Each name, or signifier for a "class or category," should rest on a clear system of reference. Such a system of taxonomic reference does not yet exist for delinquency research.

Ideally, naming is delayed until a proposed taxonomic category meets reliability and validity criteria and is shown to be structurally homogeneous. However, undisciplined naming practices in delinquency, coupled with inadequate taxonomic work, have produced a confusing array of "names" often for apparently the same delinquent type. For example, the terms "asocial aggressive," "life-course persistent," "primary psychopaths," "primary sociopaths," "fledgling

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psychopaths," among others, may all potentially refer to a single category or several subcategories. Such taxonomic confusion arises where multiple names are coined for weakly identified and poorly understood prescientific categories. This situation reflects the early stage of taxonomic development in delinquency and that it lacks the hard-won high-quality taxonomies of other disciplines.

3. *Methods to identify unknown cases to taxonomic categories*: For both research and applied correctional uses of taxonomies, reliable methods to assign individual youth to taxonomic categories in ways that minimizes "in/out" errors are critical. Yet, many prior delinquency taxonomies failed to provide such assignment methods and thus were effectively unusable for either scientific or practical purposes. This gap also hindered cumulative research to test, upgrade, or refine earlier taxonomies. Fortunately, a new generation of highly reliable assignment techniques emerging from machine intelligence disciplines is now available for this task. These primarily involve mathematically based pattern matching between a youth and central prototypes of any delinquency taxonomy.

4. *Provide structurally homogeneous youth categories for theory development*: A critical taxonomic progression in any science is a shift from taxonomies based on surface descriptive factors (e.g., behavioral patterns, criminal histories) to taxonomies based on explanatory and theory-relevant factors. This shift aims to produce explanatory taxonomies based on deeper theory-relevant and powerful explanatory factors (e.g., genetic, social, psychological, biosocial, and life histories factors). Such explanatory taxonomies and their categories play key roles in theory development. First, they have a higher likelihood, than any random sample, of being causally homogeneous since the basis for grouping is the mutual similarity of cases over a core set of explanatory variables. Such causally and structurally homogeneous taxonomic categories then become the focus for further examination and theory development and as key variables are identified and the categories may be further refined. Thus, theory and taxonomy refinement often proceed together in a reciprocal relationship.

Second, the internal "pattern" of constituent factors and the matrix of feature correlations of each category may offer data to bridge the gap from pattern structure to the process underlying the category. Such data may alert researchers to process explanations for category cohesion that begin to explain why youth in a given category follow particular patterns and not others. Causal heterogeneity and theoretical pluralism are thus reflected by the diverse patterns of explanatory factors that define different taxonomic categories. This shift from "pattern recognition" to "process explication" is a standard progression in most sciences as taxonomic research moves from "what questions" to "how questions."

5. *To alert researchers to the possible causal or theoretical pluralism*: Another key role of taxonomic research is to alert theoretical researchers to the possibility of theoretical pluralism in a domain by unraveling heterogeneous mixtures of delinquents into separate meaningful categories. Clearly, any random sample of delinquents may contain a mixture of undetected causal heterogeneity. If undetected such mixtures can create havoc with theoretical studies. For example, most studies of general theory in delinquency typically examine relationships between key variables using a sample wide correlation matrix, regression models, path analyses, and so on. It is well known that if a sample contains a mixture of causal processes, the global correlations may be attenuated or distorted based on the mixing proportions of the unknown categories. Taxonomic research may alert delinquency researchers to the qualitatively different categories underlying their samples and so protect them from trying to make sense of an ill-defined hodge-podge of different causal processes and attenuated global correlations. For example, in open systems research, the phenomenon of equifinality illustrates causal heterogeneity when different organisms starting from quite different initial states may actually converge upon the same end state.

6. *To conduct cumulative research to refine, corroborate, and verify proposed taxonomies*: Taxonomic research should ideally proceed as a cumulative research program to transform initially ill-defined and pre-theoretic descriptive categories into more structurally well-defined, reliably identified, causally homogeneous, and theoretically useful taxonomic categories. Initial exploratory taxonomic research typically produces only rough partly verified descriptive classes and limited knowledge of key defining features or underlying explanatory processes. Such provisional categories are not yet useful scientific objects and

typically require ongoing cumulative refinement and "tough minded" verification (Meehl 1992).

However, from the current scattered body of work a handful of recurring delinquent "types" is emerging (although often given different names and created using diverse samples, variables, and methods). These four broad delinquent categories include: (1) sociopathic, (2) psychopathic, (3) neurotic, and (4) normal or normative delinquents. At this stage, these broad types all remain contested, ambiguous in their definitions and core variables and in their theoretical underpinnings, yet they can provide a basis for ongoing research. There are also recent suggestions of "subtypes" embedded within these four broad categories.

7. *To support applied classification in correctional institutions*: An enormous amount of applied classification work occurs in juvenile justice correctional agencies. Classification processes are used daily on thousands of youth for security classification decisions, housing arrangements, treatment planning, diversion decisions, and increasingly in sentencing decisions, as these progressively incorporate a rehabilitative component. In such criminal-justice applications, there is a huge reliance on primitive and simplistic classifications often devoid of theoretical underpinnings, with little internal coherence to their categories, and poorly designed unreliable assignment procedures. A result is an application of classification labels that can be highly stigmatizing, devoid of treatment implications that may also introduce systematic misunderstandings and stereotyping of youth.

Definitions Pertaining to Taxonomic Research

To appreciate some of the key challenges in research on taxonomies of delinquents, discussed below, it is prudent to understand some basic definitions and conceptual issues. Some of these are now provided.

1. *What is a taxonomy?* The term taxonomy typically refers to a classification system developed with scientific methods and that has a scientific basis in reliability and validity. This implies its basic categories or taxa have met several definitional, reliability, and validity criteria for a scientifically useful class that can support inductive inferences, predictive statements, and experiment.

2. *What is a taxon?* A taxon denotes a specific category of entities demonstrated to be cohesively similar that exhibits a structural homogeneity resulting from a common underlying causal or theoretical process. Synonyms include terms such as a unitary entity, type, species, disease, natural kind, or a "nonarbitrary" category (Meehl 1992). Such categories are an ideal of science and are not always easy to find or demonstrate and various stages of prescientific categories exist. The identification of such well-defined categories involves methods and theory that can bring together "like with like" in terms of an underlying causal or generative process producing the category. An aim is to understand this category in explanatory terms based on causally relevant factors. Such categories can then be named and become tools and reference concepts for ongoing research, cumulative knowledge building, and effective research communication.

The history of taxonomic research shows that many categories, even those offered by researchers as potential taxa vary markedly in meeting the demands of scientific usefulness. Rigorous methodologies for testing taxonic status have not been widely used in delinquency, although recent taxonomic work is beginning to systematically include such testing. Early stage provisional categories were typically identified ostensibly only by appearance or by surface features. With no consensus on underlying processes or structure, such categories may ambiguously refer to one or more underlying causal processes. Their definitions will be imprecise and may dramatically change as research and theoretical understandings evolve.

3. *Prototype of a category*: The prototype of a category is viewed as its most typical member. It is usually computed as the multidimensional centroid or "average case" of a category and is typically used as an exemplar description or "standard case" to identify the key features of category. Each category in a taxonomy of delinquency will have its own prototype, e.g., the prototype of a sociopathic violent gang member will have its own typified profile to both interpret and represent the category.

4. *Hierarchical structure of a taxonomy*: Taxonomies are typically arranged hierarchically in a series of classification levels, e.g., from broad general more abstract classes (genera, families, species, etc.) to more specific subtypes at lower levels. Most delinquency taxonomies offer only single level systems with between two and eleven categories. However, two well-known taxonomies, i.e., Warren's (1971) interpersonal maturity

system and Lykken's (1995) taxonomy, are structured hierarchically, with broad superordinate categories containing multiple subtypes of delinquents nested within them at a lower level.

5. *Family resemblance or probabilistic categories*: Recent research on taxonomies of delinquency suggests that its categories are structured as "family resemblance" or "probabilistic" categories. In these kinds of categories, membership is based on overall similarity or family resemblance between the case and the core category structure, and is not an "all-or-none" affair with discrete boundaries. This grade-of-membership or probabilistic gradient depends on computing the overall similarity or number of key features an individual youth shares with core structures of the category. Thus, no specific subset of necessary and sufficient features will define membership and no specific feature is individually sufficient. This "typicality gradient" varies from highly typical core members to less typical cases at the periphery.

6. *Boundaries, hybrids, and outliers*: Current research also suggests that the boundaries between delinquent categories may be fuzzy and that intermediate or hybrid cases can exist. For example, while boundaries between psychopathic and normative delinquency may be clear, the boundaries between subtypes of psychopathic youth may be indistinct. Boundaries also depend on feature selection. If irrelevant factors are included into a taxonomic analysis, all boundaries become progressively blurred. This is one of the hazards of exploratory research in taxonomies. Finally, the inherent fuzziness of many social and biological processes in open evolving organisms can work against crisp boundaries.

Outliers are cases that are unclassifiable and distinct from any delinquent category. Recent taxonomies avoid forcing all delinquent youth into categories if there is no good fit. Thus, a proportion of cases will remain unclassified in taxonomic studies. Hybrid cases are intermediate between types and may reflect two or more etiological processes giving a complex co-occurrence of risk factors. Lykken (1995) noted that such complex cases may be expected even in an ideal taxonomy. For example, youth with a typified psychopathic profile may often also reflect sociopathic and social deprivation features thus straddling categories.

Theoretical Taxonomies of Delinquency: Major Theorists

Taxonomic research on delinquency accelerated in the mid-1990s with the emergence of three influential theoretical taxonomies each incorporating biosocial and behavior genetic explanations to delineate qualitatively different developmental pathways to delinquency (Mealey 1995; Moffitt 1993; Lykken 1995). These taxonomies proposed several theoretical constructs of delinquency types, grounded in substantial prior empirical work, with testable type patterns based on theory-relevant factors. The constructs offered several structurally homogeneous explanatory processes leading to delinquency although each extended from childhood to adulthood with complex interactions between social, psychological, genetic, and environmental factors. They incorporated a theoretical pluralism to explain each different category of delinquency. All three authors acknowledge their "types" are theoretical constructs that will require empirical verification to establish their key empirical features and general prevalence. As expected, these taxonomies have met serious challenges, e.g., Sampson and Laub (2005). The descriptions below summarize the main types within these taxonomies while noting nomenclature differences as necessary.

1. *Psychopathic delinquents – early onset and serious persistent delinquency*: All three taxonomies included an early onset serious persistent delinquent type, described as having multiple behavioral problems starting in childhood (bullying, stealing, etc.), leading to early onset of serious and persistent delinquency and onward to a chronic often violent adult criminal career and an irresponsible parasitic lifestyle. Moffitt named her category the "life-course persistent" (LCP), while Mealey and Lykken use the terms "primary sociopath" and "primary psychopath" respectively. This pattern, in each case, was similar to Hare's concept of a psychopath.

Each author attributes the antisocial propensity of this category to inherited genetic or biosocial processes that manifests in specific temperament and personality dispositions (impulsivity, selfishness, cold callousness, anger, fearlessness, risk-taking, low empathy, low guilt, and so on). This personality structure in such habitual criminals has been widely confirmed (Hare 1991) and several studies using taxometric verification methods

suggest this group is a true taxon. Mealey explicitly viewed the group as an extreme genotype – that is relatively unaffected by environmental and family environments that follows an evolutionary "cheater" or exploitive parasitical lifestyle strategy. Thus, they might emerge in any family or social class. This cheater strategy is seen as having survival value, but only at low group frequencies (3–5%) and in contexts where most persons are socially cooperative and trusting. Recent evidence from behavioral genetics supports the heritability of this pattern and recent advances are also beginning to identify its underlying genetic structures.

Lykken asserted that their "fearlessness" and dominance as children makes them very difficult to socialize and many parents are worn down and essentially give up, abdicating their socializing role. However, he suggests, optimistically, that if firm and positive parenting can be maintained, some may succeed in occupations where their qualities of fearlessness, dominance, risk-taking, superficial charm, and cold instrumentalism may be assets (e.g., test pilots, politicians, and risk-taking leadership roles). Research interest also focuses on (1) verifying the empirical profile structure of this type in adolescence, (2) whether subtypes of psychopathic youth exist, (3) changes and stability of the pattern across adolescence, and (4) whether such youth are "treatable" and by what approaches.

2. *Sociopathic delinquents*: A second broad category in the taxonomies of Lykken and Mealey is labeled respectively as the "Common Sociopath" or "Secondary Sociopath." Both descriptions emphasize the dominant role of damaging environmental factors, social deprivation, and failed socialization. It is worth noting that very similar descriptions were given in a historical body of sociological research on types of delinquents with names such as socialized delinquent, subcultural identifier, cultural delinquent, cultural identifier, and so on (Warren 1971). This category does not explicitly enter Moffitt's taxonomy.

Sociopathic delinquents are seen by both authors as physically and psychologically "normal" youth who are victims of social and environmental insults often linked to cultural conditions and family characteristics, e.g., physical and sexual abuse, neglect; inept immature uncaring parents; inadequate discipline and supervision, poverty, and unstable families; educational failure, social disadvantage, and low social and human capital. An additional theme linked to environmental insult and psychological–emotional trauma is a possibility of neurological damage and habitual cognitive distortions that may interact with socialization failures. These deprived, poorly educated or emotionally damaged youth may be blocked from, or less able to compete for valued social resources and mating opportunities. Both authors suggest a likely response is the adoption of antisocial cheating, risk-taking, early delinquency, and an opportunistic life strategy.

A social learning theme is also intrinsic to this type and arises as the deprived adolescents affiliate with like-minded peers, in poor neighborhoods, local schools, or in oppositional subcultures. Thus, they may further abandon conventional norms and aspirations while learning further antisocial cognitions from peers and drifting further from any pro-social controls. Both authors emphasize the importance of such "deviant learning histories" in criminal, oppositional, or antisocial subcultures.

Lykken (p. 7) views the sociopathic category as a far greater problem than psychopathic offenders, since they far outnumber the low-frequency psychopaths and yet can be equally dangerous and costly to society. He views Western societies, particularly the USA, as producing sociopathic youth in large numbers with "factory-like efficiency" as a result of family disorganization, inept parenting, fatherless homes, and a general failure to socialize such youth. As noted earlier, Lykken's taxonomy is hierarchical with several subtypes of both sociopath and psychopathic youth. His various sociopathic subtypes reflect attitudinal patterns common in gang and criminal subcultures, as follows.

The disempathic type: While sharing the general features of sociopathy, this subtype extends emotional bonding only to a small immediate circle (siblings, gang, homeboys) but little or no empathy for people outside this "circle of empathy" who are mostly seen as exploitable objects or enemies.

The hostile blaming type: In reaction to continued rejection and failure in conventional roles, this sociopathic subtype may completely repudiate conventional society and adopt angry, violent, or destructive attitudes to mainstream society.

The aggressive sociopath: In some violent or "honor" subcultures, some young offenders may learn to enjoy hurting or frightening others and obtain feelings of

power and dominance over victims. In such cultural contexts it may be critical for a young delinquent to be tough and unflinching to maintain a reputation, and some may habitually incorporate this interpersonal style. As Lykken (p.28) notes such males may become one of the "Alpha baboons" of the peer group.

The "normal" dyssocial sociopath: This subtype identifies persons of normal temperament who may strongly affiliate, identify with, and adopt a subculture or ideology that has norms and values antagonistic or antithetical to establishment culture. For example, some educated or idealistic youth may join environmental terrorist groups or extreme political groups, and so forth.

3. *Normal youth and "normative delinquency" – Adolescent Limited offenders (AL)*: An established finding is that some delinquent behavior is virtually normative for most adolescents and thus may be an aspect of normal development rather than pathological. Again, there may be subtypes within this large general category of apparently normal youth but there is as yet no consensus of such categories.

Moffitt's Adolescent Limited (AL) category: This category of normal youth created considerable research follow-up. Moffitt (1993) suggested that a large proportion of normal adolescents fall into an "adolescent limited" (AL) delinquent category with a later adolescent onset and a less serious temporary delinquency career usually ending by young adulthood. This AL category was not presumed to exhibit the biological or environmental risks of the psychopathic or sociopathic categories. Moffitt argued that as youth traverse the teenage years in contemporary societies, they are motivated by a growing gap between their limited access to adult roles and their rapid emotional, cognitive, and physical maturation. This "maturity gap" leads many to temporarily mimic the rebellious risk-taking of their more seriously delinquent peers as a way to achieve more autonomy, prized property, sexual partners, and some independence from parents. AL youth have generally had adequate parenting, schooling, and socialization, no significant abuse or emotional trauma, and have acquired adequate social skills and capital. Thus, when their temporary "normative" delinquency ends, most can readily reenter conventional social institutions and adult pursuits with no lasting damage. However, while most ALs desist from crimes by early adulthood, some may have a more extended adult criminal career if their social development is derailed by certain "snares," e.g., chronic drug abuse, school dropout, early pregnancy, and so on. Lykken (1995) similarly describes a temporary delinquent category among largely normal youth who are mainly seeking autonomy, fun, and adventure in the period preceding their full adult independence.

4. *Neurotic delinquents*: While this category is absent from Moffitt and Mealey's taxonomies, Lykken (p. 39) includes a neurotic category of delinquent offenders. It should be noted that a similar category of neurotic subtypes has long been proposed in prior criminological literature with names such as neurotic acting-out, neurotic disturbed, over-inhibited delinquents, internalizing withdrawn, and so forth (Warren 1971, p. 252). Delinquency in this neurotic category is generally not seen as aiming for material gain or status seeking, but as emanating from some internal conflict or trauma, paranoid tendencies or neurotic impulses. Lykken's subtypes of neurotic delinquency are seen to arise from motivations or problem-solving reactions to manage or cope with emotional disturbances, e.g., as a result of the trauma of extreme physical or sexual abuse, to gain attention from aloof parents, to provoke some response from overly permissive parents, to punish and confront conservative or religious parents, and so on. An intimidated, depressed, internalizing and socially withdrawn category has often been linked to violent abusive parenting and/or sexual abuse. Research in child abuse has attempted to unscramble the processes linking such abuse and trauma to delinquency. Gender differences in particular appear to link histories of sexual abuse to various delinquent behaviors.

Empirical Taxonomies of Delinquency: Current Corroborations and Discoveries

The above theoretical taxonomies led to a flurry of empirical studies over the last decade, to test and verify the proposed patterns. Several broad conclusions are emerging.

General conclusions on the four basic delinquent categories: First, it appears that the early–later onset distinction is related to differing etiologies reflected in two broad classes. Second, although the early–later onset dichotomy is empirically supported, there is recurring evidence that additional subtypes exist

within these early and later start categories. Third, the "neurotic" category has repeatedly appeared in several studies and has also now emerged in Moffitt's own later work. Fourth, the sociopathy construct is supported, with empirical profiles largely matching those proposed by Mealey and Lykken. Fifth, several research teams – focusing specifically on the adolescent psychopath – are producing evidence to support the existence of this category. This research was strengthened by the development of an adolescent version of Hare's Psychopathy Checklist (PCL-YV). Additionally, researchers focusing on psychopathy have applied Meehl's taxometric confirmatory methods to adolescent samples, and have concluded that adolescent psychopathy is a true taxon, although this finding is provisional and contested.

Summarizing recent empirical taxonomic studies of delinquents: Shifting from studies of a single type (e.g., psychopaths), this section summarizes a growing body of recent taxonomic studies that aim at creating full explanatory taxonomies of delinquents and that used appropriate taxonomic methods and a broader domain of theory-relevant factors. The following descriptions select only those recurring types emerging from these recent empirical taxonomies. An overall conclusion is that these data-based taxonomies also offer empirical support for the four broad theoretical categories, giving additional empirical details on each type, and finally adding information on the overall structural features of taxonomies of delinquents. These recurring empirical categories supported the existence of the broad constructs of sociopathic, psychopathic, neurotic, and normal categories of delinquents. However, more specifically these empirical types produced two psychopathic subtypes, two neurotic subtypes, and two normal subtypes. Both Moffitt's LCP and AL were also specifically supported in these empirical taxonomic studies. The details of specific types are as follows.

1. *Sociopathic delinquents – socially deprived, subcultural, or socialized delinquents*: One recurring pattern consistently identifies a socially deprived category largely matching Lykken's "common sociopath" with the following prototypal pattern: poverty, criminal/drug-using parents, antisocial peers, family disorganization, poor discipline, parental neglect, school failure, antisocial attitudes, antisocial peers, and delinquency. Lykken's assertion that these poorly socialized youth are mostly psychologically "normal" is also supported and there is little evidence of extreme low self-control or of a neurotic socially withdrawn internalizing pattern in this category.

2. *Psychopathic delinquent patterns – early onset, serious chronic offenders with impulsive low control antisocial personalities*: Two prototypes have emerged that largely match the general psychopathic construct. Differences relate to (1) parental abuse levels and (2) the presence of an internalizing hostile paranoid pattern.

Pattern A – This prototype reflects high persistent delinquency, low self-control, high risk-taking, impulsivity, low empathy, manipulative-dominance, aggression, and low remorse. These youth have a high-risk antisocial lifestyle, criminal peers, and drug abuse. The above is linked to school failure, attention problems, and disruptive behavior. While parenting characteristics and styles did not strongly characterize this profile, these youth are openly rebellious against parents. This pattern largely reflects the primary psychopaths of Mealey and Lykken, as well as Moffitt's LCP, and appears consistent with findings of Hare and colleagues. Their presence in a variety of family contexts supports Mealey's expectation that psychopathic youth may occur in any family.

Pattern B – This second prototype also reflects an extreme low self-control antisocial personality, with negative and disruptive school adjustment, delinquent peers, early onset, risk-taking, and persistent delinquency. It differs from A in several ways. First, their family has higher criminality, they reside in poorer unsafe areas, and are more disorganized and conflicted. Second, these youth experience more emotional rejection, neglect, extreme physical abuse, and less consistent supervision or discipline. Third, this abused category shows a distinct internalizing pattern of social withdrawal, hostile aggression, mistrust, and paranoid negative social attributions. This combination of an impulsive antisocial personality, linked to paranoid suspicion and hostile aggression appears to match Lykken's secondary psychopath (pp. 130).

3. *Neurotic delinquent patterns*: Two more specific neurotic internalizing categories have emerged in empirical taxonomic studies, as follows.

Pattern A – Abused, Internalizing, and Withdrawn with rejecting abusive parents: This prototype is constituted by extreme parental abuse and violence and an internalizing pattern of social withdrawal, hostility, and

suspicion. These youth mostly avoid delinquent peers, drugs, and sex and have comparatively lower delinquency activity. Lykken (1995) describes a highly similar neurotic delinquent type as exhibiting social withdrawal, suspicion, and inadequate personality in a context of rejection and uncaring relationships.

Pattern B – Internalizing delinquents with nurturing parents: This prototype has a similar internalizing pattern of social withdrawal, isolation and mistrust, and avoidance of delinquent peers, drugs and sex. However, in contrast to the abusive parents of A, the parents in this prototype appeared non-abusive, competent, and caring. This pattern appears to replicate another of Lykken's (1995) "neurotic" subcategories described as having positive parenting but who are beset by some emotional or unconscious complexity.

4. *Normal or normative delinquents – adolescent onset*: Even within large delinquent samples from juvenile justice agencies, a category of apparently normal youth consistently emerges. Some evidence suggested there may be subtypes within this large normal category. The following two subtypes have emerged in recent empirical taxonomic studies.

Pattern A – Normal youth, late onset, and minor delinquency: This prototype, emerging in several recent taxonomic studies, reflects no obvious risk factors in family, peer, school, or community contexts, and no apparent personality or emotional problems. The official criminal records of this category confirm their very low risk status showing only minimal delinquency and later adolescent onset. This category does not appear to match Moffitt's AL, showing no tendency to affiliate with delinquent peers. Lykken (1995), however, describes a minimal offender type with a normal temperament, reasonably good socialization, and competent parents. The early literature also describes a "situational/accidental" normal offender that may match this empirical category (Warren 1971).

Pattern B – Normative Delinquency with Drugs, Sex, and Peers: This prototype recurs in several studies, also identifying an apparently "normal" youth with school, family, and social strengths, although some impulsivity and risk-taking are present. Their official records generally show a later age-at-first-adjudication and mostly nonviolent offenses. However, in contrast to prototype A, this category has clear vulnerabilities to drugs, sex, and affiliation with delinquent peers and thus appears to match the pattern structure of Moffitt's (1993) AL category. Lykken (1995) also described a potential matching subtype within his broad "dyssocial sociopath" category, as psychologically normal youth engaged in a search for meaning and excitement that may often involve drugs and sex.

Controversies

1. *General theory versus theoretical pluralism*: Some of the stronger voices that dismiss the existence of heterogeneous explanatory or etiological categories of delinquents have been major well-established theorists who have offered "general" theories of crime. The assumption of unitary causation, however, appears to run against the complexity of the multiple interacting domains and emerging evidence for taxonomic structure in delinquency. This controversy remains unresolved, although the emergence of replicated findings that diverse types empirically exist may spell the end of the dominance of the long search for a "general" theory. Yet the unitary or general theory position still dominates delinquency and its journals and many prominent criminologists are not friendly to taxonomies and multiple causation.

2. *The dimensional versus categorical controversy*: A related controversy emerges regarding the data structures and distributions that delinquency researchers assume underlies their databases. Are such distributions smooth, continuous, dimensional, and perhaps multivariate normal, or do they contain substantial density variations, high-density clusters, with skewed variables and complex interactions that may lead to clumpy or multimodal distributions? While these may be easy to check with univariate procedures, most theoretical and taxonomic research is conducted on multidimensional data sets and such complexities are often latent and hidden within the data. It may be hazardous to assume a dimensional structure. This controversy will be decided by appropriate empirical analysis of various kinds of delinquency data domains (social, psychological, behavioral, genetic, etc.) and their interactions. Again, any demonstration and acceptance of stable typological structures would end the debate. The great edifice of correlational methods still largely assumes dimensional distributions. Thus, it is no surprise that the dimensional assumption dominates research and practice in delinquency.

3. *Taxonomic findings are criticized as being ephemeral and unreliable*: Past taxonomic delinquency

research has been dismissed as unreliable and that "types" identified could not be replicated. This was a valid criticism and many early (and some recent) delinquency taxonomies relied on primitive or inappropriate analytical methods, inadequate samples, used a single taxometric method, and almost universally lacked appropriate verification tests. This is changing dramatically and many current studies now incorporate newly emerging mathematical taxometric and pattern recognition methods that offer multiple methods to identify taxonomies linked to stringent verification techniques. Such studies are adding support for the existence of reliably identified taxonomic delinquent categories, including a handful of studies using Meehl's taxometric verification methods to suggest that adolescent "psychopathy" is a true taxon using a youth version of the psychopathy checklist.

4. *What is an appropriate "classification domain" on which to base taxonomies of delinquency?* Whether taxonomies emerge reliably depends profoundly on the set of input variables (the classification domain) selected by investigators on which to develop the taxonomy. Thus, taxonomies may be based on psychological, personality, sociological, demographic factors, behavioral histories, genetic factors, and so on, or mixtures of these factors. They may also be based on variables selected to address specific theoretical frameworks for the explanation of delinquency. Great care is required in delineating the selected domain space. For example, if a single theory dominates (e.g., social control theory), then powerful discriminating variables from other theories are omitted and category distinctions on such variables will be lost. Currently, the safest practice appears to be the use of comprehensive domains carefully covering several major theoretical positions. However, there is no consensus yet on selecting and organizing domain sets for the ongoing study of delinquency taxonomies. This, and the detection and elimination of irrelevant variables that simply add noise to an analysis and thus blur boundaries, are ongoing difficult challenges in taxonomic work. A variety of subsidiary methodological and conceptual issues remain unresolved in what is still a relatively early and largely exploratory phase of taxonomic research in delinquency. However, optimism is warranted since this field is only now incorporating appropriate exploratory, discovery, and verification techniques.

5. *Taxonomies of female delinquents*: While some have argued that the main delinquent types should be similar across gender, others argue that different structures are likely to occur in the diverse pathways to crime among young women offenders. At present, taxonomic research is only emerging in regard to women offenders and there are insufficient well-designed taxometric studies of sufficiently large samples of delinquent girls to offer reliable taxonomic profiles. However, this situation is likely to be temporary and there is considerable activity among researchers regarding girls and women's distinct pathways to crime.

Conclusions

As noted above, a significant set of controversies remain to be addressed by those who advocate the taxonomic approach to delinquency. However, the emergence of theoretical models to guide taxonomic research, the advances in mathematical taxonomic methods to address the complexity of the data and offer sound verification procedures has added impetus to the taxonomic approach in delinquency research. Additionally, a rising number of studies with more sophisticated designs involving multiple taxometric methods and strong verification procedures give reasons for optimism. Yet, we clearly remain at the early stages of developing a systematic validated and reliable taxonomy of delinquent youth that can provide an adequate explanatory mapping for this very complex domain. These trends suggest we may be moving closer to the day when valid explanatory taxonomies with reliable assignment techniques, that can effectively identify different kinds of delinquents with differential treatment and preventive implications, may become a reality.

Cross-References

▶ Delinquency

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Teen Courts

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Overview

Teen Courts are a rapidly growing diversion program for first-time non-violent juvenile offenders. Although the program has a sound theoretical basis, it lacks empirical support. This lack of support is due to a deficiency in methodologically rigorous evaluations and inconsistent findings regarding the program's impact of recidivism. This essay provides an overview of the program, its theoretical foundation, and existing literature. It concludes with recommendations for the future of Teen Courts.

Introduction

Teen Court (TC) seeks to provide minor offenders with sanctions intended to prevent their subsequent delinquent activity. It targets first-time non-violent juvenile offenders, in an effort to avert more serious forms of delinquency before it occurs (Butts and Buck 2002, 2002; Beck 1997; Weisz et al. 2002; Peterson and Elmendorf 2001; Pearson 2003; Butts and Buck 2000; Godwin 1998).

Although the research pertaining directly to TC is relatively meager and generally methodologically weak, the theoretical foundation for the program (i.e., reintegrative shaming, restorative justice, and labeling) has been closely examined and can potentially explain the program's popularity. The following review will critically examine the theoretical basis for TC and summarize the current research on the program. Prior to this review of the literature, a detailed description of TC is provided.

Prevalence of TC

TC is a program designed to divert juvenile offenders from the traditional juvenile justice system. The program originally began during the 1970s in Texas (or possibly Illinois – conflicting accounts in the literature make this historical note difficult to identify), and spread throughout the nation during the 1990s (Butts and Buck 2002; National Association of Youth Courts [NAYC] 2010). According to the National Youth Court Center, as of 1994, 78 TC programs existed across the country (National Youth Court Center 2002). By 1998, that number grew to between 400 and 500 programs (Butts et al. 1999). During the past decade, that number has nearly doubled to over 1,000 programs that are processing more than 100,000 cases per year (Butts et al. 2002; Pearson and Jurich 2005). There are currently TCs operating in the District of Columbia and all states except Connecticut (NAYC 2010).

What is Teen Court?

Teen Court has arguably become a major component of juvenile justice programming. However, as will become apparent in the literature reviewed below, the program's effectiveness in reducing recidivism is uncertain. Without empirical grounding, what has propelled this program into such popularity? The answer lies in the process and goals of TC as well as in its theoretical foundation.

Although every TC is slightly different, there are some similarities among programs. Most TCs take only first-time offenders, although exceptions can be made. Only offenders with minor misdemeanor charges are eligible for the program. TC hearings are held in real courtrooms where youth volunteers are responsible for the hearing outcomes. A description of the characteristics of TC volunteers and offenders follows.

TC Volunteers

While most TCs have fewer than 50 youth volunteers, ranging in age from 13 to 18, nearly 20% have more

than 100 volunteers. Generally, volunteers receive training on topics including, but not limited to, an overview of the TC process, case preparation, and sentencing options (Pearson and Jurich 2005). On average, volunteers receive about 10 hours of training prior to participation in hearings (NAYC 2010).

Youth and adult volunteers are integral to the implementation of TC. Depending on the TC model being used, youth volunteers have the opportunity to fulfill nearly every role in the hearing process, including defense attorney, prosecuting attorney, judge, clerk, bailiff, and juror (Godwin 1998; Peterson and Elmendorf 2001). Adults can also play important roles in the TC process, including those of judge, jury monitor, and general volunteer (depending on the TC model).

Godwin (1998) described the four most commonly used models in TC: the adult judge model, youth judge model, peer jury model, and youth tribunal model. The adult judge model is the most common model used in TCs. It allows youth to act in the roles of defense and prosecuting attorneys, clerk, bailiff, and juror. An adult judge presides over the hearing and has minimal involvement in the hearing process. Youth attorneys provide opening and closing statements and question the offender. The youth jury is responsible for deciding on appropriate sanctions for the offender. According to the NAYC (2010), as of 2006, more than half of TCs (53%) reported using the adult judge model. The second most common model, used by approximately 31% of TCs (as of 2006), does not involve attorneys (Godwin 1998; NAYC 2010). The peer jury model allows jury members to directly question the offender and provide sanctions, under the supervision of an adult judge. Eighteen percent of TCs reported using the youth judge model (as of 2006) which is similar to the adult judge model, but assigns a youth volunteer to act as judge rather than an adult (Godwin 1998; NAYC 2010). The final model, the youth tribunal model, is used by 10% of courts (as of 2006) and allows three to four youth judges to question the offender and determine sanctions (Godwin 1998; NAYC 2010). No jurors or attorneys are present for this type of hearing. An adult supervisor is in the room to oversee the hearing.

The prevalence of each model has remained relatively consistent over the past 10–15 years with the most notable change being the increase in popularity of the peer jury model. Earlier data collection efforts indicated that, generally, approximately half of TCs reported using the adult judge model, 15% to one quarter used the peer jury model, approximately 10–15% used the youth judge model, and approximately 10% used the youth tribunal model (Butts et al. 2002; Pearson and Jurich 2005).

In addition to variations in TC models, several other important characteristics of TCs tend to vary. For instance, a national survey of TCs indicated that only 13% of all TCs determined responsibility of offenders in 1998 while nearly a decade later, in 2006, this number dropped to seven percent of courts (Butts and Buck 2000; NAYC 2010). The remainder of programs required youth to admit involvement in offenses prior to being accepted into TC. As of 2006, when sanctions were successfully completed, 63% of courts dismissed the charges while 27% immediately expunged the records (NAYC 2010). TCs were most often run by court or probation agencies (37%); however, private agencies (25%), law enforcement (12%), schools (5%), and District Attorney's Offices (3%) also were common TC operators (Butts and Buck 2000). More recent data indicates a substantial increase in school-based programs, now accounting for approximately 36% of TC programs (NAYC 2010). While the administrating agency of TCs may vary, all of the organizations above, and others, must collaborate in order to ensure the successful planning, implementation, and sustainability of the program.

TC Offenders

As indicated above, TCs have a narrow-definition for eligible offenders. In addition to being first-time offenders, their offenses must be relatively minor. As of 2006, over three-fourths of TCs accepted theft and vandalism cases while over half accepted cases related to alcohol, disorderly conduct, assault, possession of marijuana, tobacco, and curfew violations (NAYC 2010).

According to the 1998 survey, theft cases were the most commonly *heard* cases in TC, accounting for over 90% of cases (Butts and Buck 2000). Minor assault (66%), disorderly conduct (62%), alcohol possession and use (60%), vandalism (59%), and marijuana possession and use (52%) were other commonly handled offenses in TCs (Butts and Buck 2000).

Given the variety of cases handled by TCs, efforts are taken to provide offenders with creative sanctioning that is related to the committed offense. Nearly every TC (99%) requires some amount of community

service, reflecting a component of restorative justice (Butts and Buck 2000; NAYC 2010). Over one half of programs also require offenders to provide oral/written apologies, write essays, attend educational workshops, sit on future TC juries, provide restitution, and acquire alcohol and drug assessments, as appropriate (Butts and Buck 2000; NAYC 2010).

Although it is clear that there are differences across TCs regarding youth volunteer roles, sanctioning practices, and eligibility of offenders, the crux of the program is consistent across *all* programs – youth volunteers are responsible for determining the consequences of offenders' illegal actions.

Theoretical Foundation

Although the above descriptions highlight the growth, organization, and implementation of TC programs, little is known about the program's effectiveness. This shortage in empirical support is due to an insufficient number of methodologically rigorous studies. Program supporters have used the program's incorporation of reintegrative shaming, restorative justice, and labeling principles to defend the program's effectiveness. As reviewed below, while such components can assist in explaining the program's growth and impressive level of support at the local, state, and national levels, they do little to support its effectiveness.

Reintegrative Shaming: A Contemporary Theoretical Perspective

Braithwaite's (1989) argument that reintegrative shaming will result in more positive outcomes than stigmatizing shaming propelled a new way of thinking about punishment. Braithwaite defined shaming as "any social process that expresse[s] disapproval of a sanctioned act such that there is the intent or effect of evoking moral regret in the person being shamed" (p. 100). Rather than imposing generally punitive punishments, Braithwaite's theory proposes that delinquent acts, not offenders, should be negatively labeled and punishments and the community should work to reintegrate the offender back into the community. Reintegrative shaming results in an offender's successful return to the community. In other words, the offender embraces mainstream values and begins to positively contribute to the community. If the offender experiences stigmatizing shaming (where he feels isolated from the community), he will continue to offend and turn to other offenders for support.

TCs attempt to incorporate reintegrative shaming into the hearing process. While youth are punished for their offenses, efforts are made to ensure that punishments fit the crimes (e.g., a report on the dangers of drunk driving for youth coming before the TC with an alcohol citation) rather than assigning sanctions that are completely unrelated to the offense(s). TC is explicit in communicating that the offender is *not* a delinquent or otherwise bad, but instead simply made a poor decision (Shiff and Wexler 1996). Shiff and Wexler (1996) also contend that if offenders feel labeled during the TC hearing process, they can liberate themselves of the label once they return to the TC as a jury member. This process allows them to reintegrate themselves back into the community. As a member of the jury, they can help curb the misbehavior of other offenders. By doing so, they remove themselves from their delinquent peer groups and come to affiliate with more conventional peer groups, namely, those on the jury panel. TC empowers youth to believe that they are able to control their decision-making and make positive contributions to their communities (Godwin 1998).

Although the goals of TC are fitting with the reintegrative shaming philosophy, there is mixed evidence as to the effectiveness of reintegrative shaming in reducing subsequent offending (Hay 2001; Losoncz and Tyson 2007; Miethe et al. 2000). One specific criticism of the theory stems from evidence showing that reintegrative shaming is unlikely to work because it does not provoke remorse or a want to be reintegrated by the offender (Hayes 2006).

While the incorporation of reintegrative shaming principles in TC is common, the use of such principles cannot provide evidence as to the program's overall effectiveness.

Restorative Justice: A Model for Teen Courts

Restorative justice programs provide an atmosphere where offenders can become reintegrated into their communities and their victims can return to their daily lives without fear and uneasiness. Specifically, restorative justice programs seek to repair damage between three stakeholders: the offender, the victim, and the community. Once such repairs are made, all individuals in the community can return to their daily

lives, hopefully as a more cohesive unit than they were before the offender committed his or her offense(s) (Bonta et al. 2002; Friday 2003; Sherman and Strang 2007).

The principles of restorative justice are evident in TC through the program's inclusion of victim testimony and/or victim impact statements, community service sanctions, and the involvement of offenders' peers. These components allow the offender to make reparations both to the victim (when one exists) as well as to the community. In spite of some methodological issues with much of the research evaluating restorative justice programs (e.g., lack of process evaluations and sample selection issues) as well as inconsistent findings across studies, the research on the use of certain elements of restorative justice programming to reduce recidivism is promising. Specifically, research on the use of community service and restorative sanctions, to reduce recidivism, is generally positive (Bazemore and Maloney 1994; Bonta et al. 2002; Greene and Weber 2008; Hoffman and Xu 2002; Pearson 2003; Robinson and Shapland 2008; Sherman and Strang 2007). That being said, restorative justice principles are only one component of TC. Although certain restorative justice activities enjoy empirical support, this support cannot be used to argue the effectiveness of the entire TC program or to justify its rapid expansion.

Labeling Theory: The Push for Diversion

TCs and similar diversion programs often cite labeling theory in explaining why such programs should be effective. By offering offenders an alternative to traditional sanctions, and allowing them the opportunity to avoid an official label of "delinquent" by the juvenile justice system, they will be less likely to commit subsequent delinquent acts.

Labeling theorists argue that official labels by the juvenile justice system cause offenders to identify themselves as delinquent and propel them into criminal lifestyles (Frazier and Cochran 1986; Kammer et al. 1997; Lundman 1976; Osgood and Weichselbaum 1984). By diverting youth away from the juvenile justice system, the likelihood of such youth being labeled delinquent is lessened. Lemert (1981) believed that programs like TC could prevent the negative consequences caused by official labels, thus reducing the chance of reoffending. In addition to altering offenders' identities, juvenile justice processing can also be detrimental by forcing the removal of youth from school and/or regular activities. The consequences of such actions can be short-lived or long-term in terms of later challenges in gaining employment and general well-being (Lemert 1981).

Although in theory, informal programs such as TC may provide offenders with an opportunity to avoid the detriments associated with formal sanctioning, the research is not entirely supportive (Farrington 1977; Lemert 1981; Osgood and Weichselbaum 1984; Rausch 1983). Empirical findings are inconsistent regarding whether formal labeling is actually detrimental and whether informal labels produce more favorable outcomes.

Informal sanctions have also come under the radar of labeling critics. Contrary to more traditional beliefs regarding labeling theory, diversion programs may also be "labeling" youth (Frazier and Cochran 1986; Gibbons and Blake 1976; Hassett-Walker 2002; Kammer et al. 1997; Minor et al. 1997). Some research has found that instead of taking away the negative label, diversion programs only change the label. Thus, simply changing the sanctioning agent or the nature of the sanctions does not protect the offender from the detriments of the label. Rather a more effective alternative would be for the offender to receive no sanctions, no requirements, and no continued interaction with any official or unofficial system (Frazier and Cochran 1986; Harrison et al. 2000; Seyfrit et al. 1987).

As apparent from the brief review above, the research related to reintegrative shaming, restorative justice, and labeling theory does not provide a convincing argument to support the effectiveness of TC. That being said, these principles fit with the goals of TC and may explain the program's popularity.

Research directly evaluating TCs is required to *justify* the popularity of this rapidly growing program. An examination of the limited research evaluating the effectiveness of TC in reducing recidivism follows.

Empirical Status of Teen Court

Despite the popularity of the TC program, there is very little empirical evidence supporting its effectiveness. The two main reasons for this lack of evidence are too few research initiatives and poor methodologies. For the most part, the research that exists has low validity and/or inconclusive findings.

Many TC studies have not used comparison groups, thus limiting their ability to assess the program's effectiveness (e.g., Beck 1997; Forgays et al. 2004; Garrison 2001; Rasmussen 2004; Rassmussen and Diener 2005; Rothstein 1987). Minor et al. (1999) examined TC respondents over three different time periods and found a recidivism rate of 31.1%. Unfortunately, without a comparison group, it was not possible to know whether TC reduced, did not effect, or aggravated recidivism as compared to alternative sanctioning programs. Harrison et al. (2000) also examined TC recidivism and found a recidivism rate of 25.3% for participating youth. This rate was lower than the recidivism rates of the other diversion programs in the county, but because no information about youth participating in the other diversion programs was provided, it was impossible to know if groups participating in different diversion program options were at equal risk for subsequent reoffending.

A small body of literature has used comparison groups to evaluate the effectiveness of TCs. Using a matched sample, Hissong (1991) found that for the first year following the completion of TC, TC participants were less likely to recidivate as compared to a comparison sample. However, this effect changed directions after 1 year, with the TC participants becoming more likely to recidivate. Seyfrit et al. (1987) found more promising results, with 9.6% of their TC sample recidivating as compared to 12% of a sample receiving traditional juvenile justice services; however, this difference was not statistically significant.

A report submitted to the North Carolina General Assembly showed that TC had no significant effect on recidivism (North Carolina Administrative Office of The Courts 1995). The comparison group was created using archival data of youth who had been processed through the juvenile justice system before the TC program began. Significant differences in age and type of offense were noted between the two samples. The study reported recidivism rates of 20% and 9.3%, respectively, for the TC and comparison groups. While this difference was not statistically significant once controls were entered into the model, such findings raised doubts as to the efficacy of the TC model.

In 2002, the Urban Institute published the Evaluation of Teen Courts Project (ETC; Butts et al. 2002). This report included a quasi-experimental evaluation of four TCs located in Alaska, Missouri, Maryland, and Arizona. Each TC was compared to a matched sample of youth (matched on demographics and offense) chosen from the traditional juvenile justice system, with the exception of the Maryland sample. The comparison group for Maryland was from another diversion program that offered sanctions similar to those of TC. All participants in the TC sample and their parents completed questionnaires to capture attitudinal information. The self-report surveys were administered to TC participants immediately before and after their appearances in the TC hearing but before sanctions were provided. A final survey was administered after participants completed all of their sanctions.

Overall, attitudes before court were fairly prosocial and positive toward the TC process. Support for TC did not change significantly after the hearing. However, attitudes in Missouri decreased slightly more than those in the other evaluation sites. Parental attitudes for TC were more positive after the hearing than before. TC was found to significantly reduce recidivism in Alaska and Missouri. The Maryland TC sample had a slightly higher recidivism rate than the comparison group, but the difference was not statistically significant. The Arizona TC had less recidivism as compared to the traditional services group, but the findings were also not statistically significant.

In looking at the relationship between the perceptions of the participants and recidivism, prosocial attitudes as well as positive attitudes toward TC appeared to reduce recidivism. No relationship was found between recidivism and prosocial bonding or delinquent peer associations. The magnitude of changes in attitude could not be compared for the TC and comparison groups, and the comparison groups had not administered the self-report survey.

The ETC project was one of the first rigorous evaluations to examine the effectiveness of TC. In addition to using control groups and multiple outcomes, it examined TCs across the country, increasing the generalizability of its findings. While the results of the evaluation have been interpreted as encouraging for TCs, they are not consistent and the lack of significant findings in two of the evaluation sites raises questions, especially given the fact that in one site, the direction of the results did not favor TC.

Forgays' (2008) recent evaluation explored reoffenses for a group of youth who completed TC to a matched sample from a first-time offender court

diversion program. Results were favorable for the TC program with those participants reoffending significantly less than the first-time offender diversion program participants.

Stickle et al. (2008) recently conducted the first experimental evaluation of TCs. Four TCs across one state participated in both a process and outcome evaluation. The process evaluation identified the program goals and objectives and measured the fidelity of program implementation. Goals and objects were shared by all of the participating TCs. Findings showed that TCs were meeting the implementation standards they set for themselves. This was an important part of the evaluation as it allowed the evaluators to be confident that outcomes were the result of the program and not due to poor or improper implementation.

The outcome evaluation randomly assigned participants to participate in TC or traditional juvenile justice services within each county. Data collection efforts included the administration of self-report surveys and the collection of official records for both the TC and comparison groups. The survey measured outcomes that the TCs believed would be impacted by their programs. These outcomes included: (1) frequency of drug use; (2) last month drug use; (3) delinquent behavior; (4) social skills; (5) belief in conventional rules; (6) positive self-concept; (7) rebelliousness; and (8) neighborhood attachment. The survey was administered approximately 3 months after program completion. Unfortunately, due to a lack of resources, the survey could not also be administered at the start of offenders' TC or juvenile justice experiences.

Survey results showed that TC participants did not fare as well as their counterparts receiving traditional juvenile justice services. Through multiple analyses, including bivariate and multivariate tests and sensitivity analyses, TC youth were consistently found to have less favorable outcomes than those in the comparison group. TC youth reported significantly more delinquent behavior following their TC experience than the comparison group. There was also a consistent difference between the two groups regarding the outcome measure of belief in conventional rules, with those in TC reporting lower values. While the groups did not differ significantly on all self-report measures, the direction of the results consistently favored the comparison group. Furthermore, small to moderate effect sizes were found for many of the outcomes, indicating that despite statistically insignificant findings, treatment was having at least small effects on outcome behaviors.

The review of official records proved to be more uninformative. Both juvenile and adult arrest records were reviewed for an 18-month follow-up period. Although TC participants offended at a higher rate than the comparison group (32.1% versus 25.5%, respectively) and had a higher average number of total rearrests (0.75 versus 0.53, respectively), these differences were found to be statistically insignificant.

Conclusions and Recommendations

Few concrete conclusions can be drawn from the above overview. While some of this literature certainly casts doubt upon the efficacy of the TC program, methodological flaws limit the ability to draw confident conclusions.

The failure of the Urban Institute study to control for differences between the control and treatment groups, for instance, suggests the possibility that differences in outcomes could be the result of preprogram differences rather than TC participation. These flaws are not unique and are found in other TC studies (e.g., Seyfrit et al. 1987; Rasmussen and Diener 2005; Forgays et al. 2004). Even those studies that claim to be rigorous failed to collect recidivism data on control groups, thus limiting their usefulness in evaluating program efficacy (e.g., LoGalbo and Callahan 2001; Weisz et al. 2002).

Stickle et al. (2008) offered a methodologically rigorous evaluation of TCs that requires replication. It improved upon the prior research through the use of an experimental design and by augmenting the official recidivism measure with self-reports of delinquency and other attitudes targeted by TC. Although experimental designs are challenging to implement, they are imperative to understanding the true effects of this popular program.

TC practitioners and funders may question where TC goes from here. Obviously, the literature does not show promising findings for this program. In spite of such findings, it would be unfortunate to simply end such a popular and potentially promising program. At the very least, the program provides an excellent opportunity for inter-agency collaboration and valuable professional experiences for youth volunteers. Rather, it is imperative that all programs engage in some evaluation. Process evaluations will help to assess the fidelity of programs.

Evaluations using matched samples or experimental designs, and rigorous statistical tests are necessary before making further decisions regarding the future of this program. In the mean time, caution should be used when implementing TCs. Funders and practitioners should be aware of the current research findings and mandate ongoing evaluation of individual programs.

Cross-References

► Diversion Programs
► Restorative Justice

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Temperament

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Adolescent development involves transition and potential for change. That potential, however, may be somewhat constrained by one's temperament. Temperament emerges as a key factor in fostering stability and resisting change since it involves how individuals tend to react to situations, such as through their levels of excitability, responsivity, or arousability, and how they self-regulate that reactivity through their typical mental processes and behavioral responses. Much of the research dealing with temperament has involved young children and pre-teens (see Roberts and DelVecchio 2000). However, since temperament fundamentally involves how individuals experience and respond to situations, it clearly emerges as a factor relevant to adolescent adjustment and development. Recent research that does examine the place of temperament in adolescence and young adulthood supports the proposition that temperament can play a key role in adolescent development. Indeed, researchers now maintain that temperamental characteristics that develop during early childhood become stable and also are predictive of behavioral outcomes during adolescence and young adulthood (Newman et al. 1997; Caspi 2000).

Although there have been different definitions of temperament offered by leading researchers, temperament generally is viewed as "biologically rooted individual differences in behavior tendencies that are present early in life and are relatively stable across various kinds of situations and over the course of time" (Bates 1987, p. 1101). From this perspective, temperament is genetically determined, although its expression remains linked to environmental conditions. Temperament easily can be confused with the broader term "personality and with, for example, the Big Five personality traits of Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism (OCEAN, or CANOE if rearranged). (This can get even more perplexing in that the Big Five are often presented as heritable, as will be seen below.) Perhaps the feature that distinguishes personality from temperament is the proposition that temperament is the genetically determined part of personality (Matthews et al. 2003). Typically, temperament is presented as involving emotional and physiological reactivity and regulation expressed through children's negativity and positive emotionality, activity level, sociability, and shyness (Buss and Plomin 1984; Rothbart and Bates 1998).

Researchers who study temperament's foundational characteristics, such as shyness and excitability, deem the traits as highly heritable. "Heritable" simply means that the characteristic is able to be inherited. Although such claims can be somewhat controversial, heritability itself is a simple construct to understand. Heritability refers to the statistical proportion of phenotypic variance attributable to genetic variance.

As a proportion, the range can run from 0 to 1, with proportions being closer to zero meaning that genes do not contribute much to express (phenotypic) individual differences and with proportions closer to 1 meaning that genes account for more of the phenotypic individual differences. When researchers speak of high heritability, they typically refer to characteristics that have between 0.40 and 0.70 heritability. These figures may seem small, but it is important to keep in mind that proving heritability of psychosocial tendencies in the face of wide environmental influences remains considerably challenging. Leading behavior geneticists, however, do conclude that strong evidence supports the claim that virtually all individual psychological differences, when reliably measured, are moderately to substantially heritable (Bouchard and McGue 2003). Reviews of behavior genetic studies of temperament and personality report heritability estimates ranging from 30% to 60% (see Windle and Windle 2006).

Several researchers have offered foundational structures that would constitute temperament. One of the most influential approaches was offered by Chess and Thomas (1985). Chess and Thomas identified three fundamental temperament types, namely "easy," "difficult," and "slow-to-warm-up." These three types reflect clear and observable variations in children's responses to environmental stimuli. Buss and Plomin (1984) have suggested that temperament involves three dimensions: Emotionality–Activity–Sociability. Under their paradigm, "emotionality" deals with psychological instability and a proneness to experience feelings of fear, anger, and sadness. "Activity" involves characteristics like tempo, vigor, and endurance. And, "sociability" involves dispositions to affiliate and be responsive to others. In addition to those characteristics, some propose that temperament also involves self-regulation features. The most prominent model in this area has been offered by Rothbart and Bates (1998) who view temperament as involving reactions (like shyness or sociability) but also self-regulation, such as effortful control that provides individuals with the ability to inhibit a response. As can be seen by even a cursory look at these paradigms, temperament tends to fit much better with images of childhood than youth and adults since temperament involves quite basic dispositions that could perhaps be more difficult to identify in other developmental periods. That difficulty would arise because, with age, individuals learn how to adapt behaviorally to their biological predilections and have greater ability to regulate its expression (see Steinberg 2007).

Although the temperaments that have been identified as relevant to children may not seem particularly relevant to other developmental periods, research does show that, during adolescence, specific temperamental characteristics are known to interact with a wide range of risk and protective factors, such as parental discord (Davies and Windle 2001) and neighborhood poverty (Lynam et al. 2000). It is increasingly acknowledged that at various ages, temperament plays a critical role in youths' social and emotional functioning, and more specifically in the development of psychopathological syndromes (Nigg 2006). Most notably, for example, temperament has been linked to alcohol use and substance abuse (e.g., Colder and Chassin 1997). Similarly, temperament (e.g., behavioral inhibition) has been shown to predict anxiety and depressive disorders (Masi et al. 2003). Perhaps even more impressive is research conducted by Caspi and colleagues (Caspi et al. 2003) that showed the long-term manifestations of temperaments. His research team followed three temperament groups of young children in their development to adulthood. They found that children who had been classified as undercontrolled and overcontrolled at 3 years of age still evinced signs of these temperament categories at age 26. Children who had been classified as well-adjusted still represented the normative group in adulthood. The links were modest, but still impressive in the manner that they revealed stability over long time periods.

It is important to note that research makes it difficult to untangle temperamental influences on adolescent adjustment and outcomes. Studies in this area do suggest that temperament becomes increasingly less malleable and they seek to identify the roots of stability. This area of research tends to assume that stability involves the reflection of endogenous characteristics, including characteristics that they deem influenced by genetics (McCrae et al. 2000). Factors from environments, however, could also explain stability. Stable temperament characteristics emerge from interactions with the environment, such as the acquisition of coping skills due to environmental pressures. Similarly, both environmental and genetic mechanisms can foster changes. Most notably, puberty may activate new genes, which can evoke change. Environmental changes

can also stimulate manifestations of different temperaments (Rothbart et al. 2000). It is important to understand that simply because something is genetically or biologically determined, it does not mean that the expression must come early in development. Given the role played by temperament in adolescent development, research has turned to studying it to understand individual differences in temperament, its stability and change, and its relationship to a variety of outcomes.

Researchers now offer transactional models of mutual influence to understand the influences of temperament on adolescent development. As with other age periods, adolescents' dispositions can influence how they interact with their environments, and how their environments respond to them has an influence on the expression of some of their dispositions (Scarr and McCartney 1983). For example, some examine interactions between temperament and parenting to explain the development of adjustment problems in youth (see, e.g., Reiss 1995). A child's temperament and a parent's style of parenting can shape one another; they can either promote positive qualities or exacerbate negative ones. Children can elicit specific parenting responses, and parents' behaviors may then reinforce, exacerbate, or evoke behaviors from their children and shape their temperamental characteristics. Then those temperamental characteristics can be transferred to other relationships, such as peer groups. Thus, the underlying causes of temperamental continuity over time may be as biological as they are social.

Although it may be difficult to entangle differences and transactional models have been proposed to address these entanglements, recent research has moved the field toward identifying more specific links between temperamental characteristics and biological mechanisms. Whittle et al. (2008), for example, examined links between four temperamental characteristics (effortful control, negative affectivity, surgency, and affiliativeness) and measures of relevant brain regions (anterior cingulate cortex [ACC], orbitofrontal cortex, amygdala, and hippocampus). Their sample was relatively large for these types of studies, with a size of 153 adolescents between the ages of 11–13. They reported finding links between regional brain volumes and temperament scores. For example, they reported that a larger volume of the left orbitofrontal cortex and hippocampus was associated with higher effortful control. A smaller volume of the left dorsal paralimbic relative to limbic portion of the ACC associated with higher negative affectivity. A larger volume of the right rostral/ventral limbic portion of the ACC associated with higher affiliativeness. Their study provided interesting support for a neuroanatomical basis for individual differences in temperament.

The study of adolescence has long examined links between biological and psychosocial developments. That research, however, generally has focused on change, such as the effects of somatic, hormonal, and neurobiological changes emerging during puberty. Rather than viewing biological and genetic dispositions as agents of change, this area of research focuses on stability. One of the most fruitful areas of research is likely to involve efforts that move beyond showing how temperament is preserved and toward seeking to understand how temperament can change, and to search for factors that shape different developmental trajectories. The adolescent transition provides an opportune time to study those changes, or lack of them.

Cross-References

- ▶ Heritability
- ▶ Personality

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Temporal Lobe

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The temporal lobe is one of the four lobes that constitute the cerebral cortex, which is one of two cerebral hemispheres of the brain. The brain has two temporal lobes, one situated on either side of the brain and just above the ears. These lobes are the location of the primary auditory cortex, which is responsible for interpreting sounds; but it serves a lot more functions than that. The temporal lobe is divided further into right brain - left brain functions. Like most regions of the brain, according to which, the right temporal lobe controls the left side of the body and the left lobe controls the right side of the body. The left and right lobes serve different functions. For example, the left temporal lobe governs speech; it contains the Wernicke's area, known as the language zone, generally known to control processes involved in comprehension and verbal memory (see Damasio et al. 2004).

The temporal lobe performs many important functions in addition to those listed above. The temporal lobe contains the hippocampus, with stores the essential components of memory, such as long-term memory, and place an important role in the retrieval of information stored in the brain (Chin et al. 2010). On the lower surface of the temporal lobe is the olfactory lobe, which is responsible for identification and recognition of olfactory information. Also located in the temporal lobes is the amygdala, which plays a key role in processing memory of emotional responses. The amygdala helps with mood stability, and it can contribute to unpredictable moods and behaviors. Not surprisingly, the temporal lobe also regulates the expression of fear (Vuilleumier 2005). Also, the lower portions of the temporal lobe process and interpret the most advanced types of visual memory; and they also regulate feelings of conviction and insight, as well as self-awareness (see, e.g., Kipps and Hodges 2006). Since the temporal lobe processes sounds and written words into meaningful information, reading comprehension as well as retention entirely depends on it.

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► Brain Maturation

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Terrorism

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Terrorism is defined in Title 22 of the US Code, Section 2656f(d), as "premeditated, politically motivated violence perpetrated against noncombatant targets by subnational groups . . . intended to influence an audience". The use of force against a civilian population in an attempt to effect change is, by design, grander in scope than physical injury and destruction of property. Indeed, research demonstrates that contact with terrorism is associated with increased rates of psychological distress, functional impairment, traumatic stress-related symptoms, and post-traumatic stress disorder (PTSD; Hoven et al. 2005; Schuster et al. 2001; Silver et al. 2002). Broadly speaking, research indicates that the extent (i.e., "dose") of terrorism-related exposure is associated with postattack functioning, but a host of other key factors – including peritraumatic distress, social support, and individual differences in coping – greatly affect postattack functioning as well.

The psychological impact of terrorism is particularly concerning in regard to adolescents, given that they are still developing a stable sense of security about their world. Terrorist events substantially alter the ecology within which adolescent development unfolds. Adolescent youth experience terrorism in a variety of ways, including (a) proximal contact with an attack (i.e., being in a city under terrorist attack and/or losing a loved one in an attack), (b) media-based contact with actual terrorist attacks (e.g., viewing a terrorist attack or its results on television), and (c) exposure to an extended climate of threat, expectation, and alert. Each type of contact with terrorism places the adolescent at heightened risk for subsequent distress, maladjustment, and the development of psychopathology.

Proximal Contact with Terrorism

Approximately 75% of youth who come into proximal contact with a terrorist attack report at least one PTSD symptom, almost half report at least three PTSD symptoms, and as many as 10% of such youth probably meet diagnostic criteria for PTSD (see Comer and Kendall 2007). There is evidence that anxiety disorders other than PTSD (e.g., separation anxiety disorder, agoraphobia) may occur in even higher prevalence than PTSD among proximally exposed youth (Hoven et al. 2005; La Greca 2007). Epidemiological research shows significant elevations in substance use among adolescents proximally exposed to terrorism (Wu et al. 2006), suggesting that targeted substance-use prevention programs for adolescents may be warranted in the aftermath of terrorism exposure.

Risk analyses show that the target locations for terrorist attacks are typically those that are critical to the government and economy, contain iconic symbols, and are high in human occupancy. These targets tend to exist in major urban areas, and thus when terrorism strikes, a great many individuals are in close proximity and are vulnerable to directly witnessing the attack, seeing dead or injured people, being involved in an evacuation, experiencing extended hours of separation from loved ones amid a climate of panic, losing a loved one, viewing physical damage or ruins, and/or being forced to relocate their residency. Exposure to each of these terrorism-related experiences, in turn, increases risk for the development of psychopathology in the adolescent who comes into proximal contact with terrorism. Emerging evidence shows that children of first responders to terrorist attacks (e.g., firefighters, EMTs, police officers) are also at increased risk, even if they themselves have not been directly exposed to attack-related trauma (e.g., Hoven et al. 2009).

Research shows proximal exposure to terrorism can result in elevations in adolescents' prejudicial attitudes and ethnically motivated peer victimization. Using a prospective design and within-group comparisons, Bal-Tal and Labin (2001) examined Israeli adolescents' views/stereotypes of Palestinians three times in 1996 (i.e., Time 1 = an extended period of Palestinian–Israeli peace; Time 2 = 1 day following a terrorist attack perpetrated against Israelis by a Palestinian – the first attack after 7 months of peace; and Time 3 = 3 months thereafter). Israeli adolescents' perceptions and attitudes changed (negatively) from Time 1 to Time 2,

with teens indicating at Time 2 that they believed Palestinians to be less clean, good, attractive, sociable, loyal, hospitable, trustworthy, tempered, and merciful than at Time 1. The negative attitudes were maintained at Time 3. Moreover, Israeli teens' attitudes about "Arabs" (a general label that fails to differentiate among various national groups) also moved in a negative direction from Time 1 to Time 2.

Media-Based Contact with Terrorism

Terrorists seek to communicate threat to a wide audience. Technological advances and trends in mass media provide a stage unlike any in history from which terrorist acts reach a truly vast audience. Twenty-four-hour news networks, the increasing availability of personal computers and the Internet, and the increasingly sophisticated technology for live broadcasts afford unprecedented coverage of terrorism – potentially spreading fear and anxiety to a global population. Media-based contact with terrorism may help to explain the great emotional distress identified in individuals located geographically distant from terrorist attacks. Following a terrorist attack, individuals near and far are exposed to an enormous amount of attack-related media coverage, and such exposure is positively associated with subsequent PTSD symptomatology, behavioral withdrawal, and/or general anxiety (e.g., Pfefferbaum et al. 2003; Schuster et al. 2001). In addition, individuals' *reactions* to attack-related media coverage (i.e., emotional responses of fear, helplessness, and horror) may be as predictive of postattack PTSD symptoms as the objective extent of attack-related media coverage consumed.

Secondhand Terrorism

In order to examine the full impact of terrorism on the psychological functioning of adolescents, it is critical not only to examine proximal and media-based contact with actual terrorist events but also to examine the subsequently changed ecology in which adaptation unfolds. Importantly, political rhetoric and media presentations covering the potential for *future* attacks require consideration. Comer and Kendall (2007) examined how in the aftermath of the attacks of 9/11, the American media were dominated by a recasting of social and political events and decisions within the context of future terrorism. Although, statistically speaking, it was very unlikely that the majority of Americans would ever directly experience terrorism, exposure to such secondhand terrorism – in which cultural influences disproportionately attended to the *possibilities* rather than the *probabilities* of individual terrorism victimization – contributed to omnipresent threat and insecurity and countless false alarms. This, in turn, placed individuals at heightened risk for subsequent distress, maladjustment, and the potential development of psychopathology. Indeed, experimental and correlational research show that exposure to threat-related news is associated with increased anxiety in youth and elevated perceptions of personal vulnerability to future terrorist attacks (Comer et al. 2008a, b).

How best should parents help adolescents process that which they see on television regarding future terrorism possibilities? In a recently completed randomized-controlled trial, Comer et al. (2008b) showed experimentally that training mothers in Coping and Media Literacy (CML) prior to viewing and then discussing terrorism-related news with their children resulted in lower youth anxiety and terrorism-related threat perceptions. Mothers trained in CML were directed to model confidence in their security, to offer praise when their child offered coping statements (e.g., "that's a great way to think of things; I'm really proud of you"), to help their child challenge dysfunctional statements, and not to express their own terrorism fears to their children. In addition, mothers trained in CML were instructed to educate their children about the media and the lack of proportionality inherent in brief TV news pieces. Without trivializing the actual risks, mothers were instructed to help their child understand the precise probability (as opposed to possibility) of personal terrorism victimization, to explain the time constraints attached to such news pieces, and to introduce positive and hopeful aspects of the world situation not addressed by the news.

Adolescents as Perpetrators of Terrorism

Although the vast majority of research on adolescents and terrorism has focused on adolescents as victims of terrorism, adolescents can also serve as perpetrators of terrorism. Scholarly works examining the causes, motivations, and determinants of terrorism have found that – contrary to popular beliefs – individuals who engage in terrorism do not necessarily exhibit high levels of psychopathology, nor are they necessarily characterized

by low levels of education and financial resources. Current psychological theories focus on the conditions under which individuals are socialized into terrorism, as well as the psychological processes that underlie this transformation. Moghaddam's (2005) model focuses on perceived injustices accompanied by (1) discontent, frustration, and/or anger; (2) beliefs that one does not have an effective voice in society; (3) a perception that there are limited options for overcoming perceived injustices; (4) a rigid us-versus-them mentality; (5) socialization to see terrorist organizations as legitimate; and (6) encouragement from leaders to displace aggression onto out-groups. Other theories have placed greater emphasis on narcissism and individual needs for identity and belonging.

Cross-References

► Extremism
► Fanaticism

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Testimonial Competency

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Testimonial competence involves the competence to testify under oath. Individuals are deemed competent to testify if they understand the oath and the responsibility to tell the truth (see Levesque 2006). Competence also means that they must possess the ability to perceive accurately an event, remember it accurately, and communicate it accurately. Importantly, for competency, there is no concern about the witnesses' credibility; credibility is an issue for juries/judges (whomever serves as the "trier of facts") to determine and weigh in their evaluation of trial evidence (see Levesque 2002, 2006). Although these issues would seem quite straightforward, they actually have been the subject of debate and reform that responded to the understanding of children and adolescents as well as other legal developments, as exemplified by recent legislative and judicial developments in US law.

Until approximately 4 decades ago, the United States was markedly diverse in its approaches to the testimonial competency of minors. States had statutes that presumed children under a certain age, with that age varying considerably but sometimes reaching as old as 14, incompetent to testify (see, e.g., Prince 2004). Despite that presumption, the Supreme Court of the United States already had long rejected the notion that even young children should be deemed presumptively

incompetent and, instead, had emphasized their ability to understand the difference between truth and falsehood and the consequences of telling the latter (Wheeler v. United States 1895). By the late 1970s, the federal courts followed the dictate that everyone is competent to testify, as codified by the Federal Rules of Evidence, Section 601 (2010). Later, in the 1990s, the Federal Rules would adopt Rule 603, which stipulates that "every witness shall be required to declare that the witness will testify truthfully, by oath or affirmation administered in a form calculated to awaken the witness' conscience and impress the witness' mind with the duty to do so." These rules, or at least a version of them, eventually were followed by most states; most mandate that witnesses take the oath or make an affirmation and do not presume that minors are incompetent to testify (see Levesque 2006).

To ensure that child witnesses understand the "oath or affirmation," courts routinely inquire into children's understanding of the difference between the truth and lies and their appreciation of the obligation to tell the truth. This inquiry typically is conducted through a competency hearing. That hearing involves asking the child very basic questions to ascertain whether they know what a lie is and what happens if they tell a lie. At the federal level, these competency hearings can be guided by the *Child Victims' and Child Witnesses' Rights Act* (2009), which also provides courts with alternatives to providing testimony. The new legislation highlights the point that a minor could be deemed incompetent to testify or otherwise incapable of testifying for a variety of reasons, such as their fear from defendants.

Recent Supreme Court cases have contributed to some controversy regarding children's testimonial competency. A general understanding used to be that if minors were deemed incompetent to testify, that some of their statements (such as those given to doctors or investigators) could be admitted as hearsay (Levesque 2002). That may no longer be the case, or at least it may be the subject of debate whether it is permissible until the Supreme Court decides a case on point. The Court has held that if a hearsay statement is "testimonial" (intended to be used in a future criminal prosecution), then the statement cannot be admitted against a criminal defendant unless the defendant has the opportunity to cross-examine the person stating the hearsay, such as a person's recorded statements to police (Crawford v. Washington 2004).

Adolescents, then, may be presumed competent to testify, just as everyone may be presumed to be. Still, they may be required to demonstrate that competency. Importantly, that competency may be challenged for a variety of reasons, especially when adolescents have been victims of violence and the trial procedures may be problematic for them. There have been efforts to address these issues, but those developments eventually may be deemed impermissible as the Supreme Court continues to revisit this area of jurisprudence.

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Thematic Apperception Test

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While controversial among academic clinical psychologists, the Thematic Apperception Test (TAT; Murray 1943) remains a widely used projective personality assessment technique in the clinical assessment of adolescents and in research on personality development throughout adolescence. The TAT is essentially a semi-structured storytelling technique, with the stories told in response to a series of emotionally provocative and/or ambiguous achromatic pictures. While rooted in psychoanalytic theory, especially the analytical psychology of C.G. Jung, a variety of

objective coding and scoring systems now exist to measure both normal developmental personality motives and needs (e.g., achievement, intimacy, power) as well as a variety of clinical constructs directly related to an adolescent's level of personality organization and psychopathological deficits. However, most clinical psychologists continue to use informal, idiographic interpretations of an adolescent's stories to understand their client's personality dynamics. The development of the TAT, its use among adolescents, and its ability to surface developmental problems, especially with the vicissitudes of identity consolidation are reviewed. Finally, issues related to teaching and learning TAT interpretation are discussed in this essay.

The Thematic Apperception Test (TAT; Murray 1943) remains one of the most versatile and widely used psychological assessment techniques ever developed. Surveys of psychological test usage inevitably rank the TAT among the top five instruments used regardless of the evaluation setting, clinical population, or referral question (Archer et al. 1991). While the TAT is a lifespan personality assessment technique, historians of assessment psychology know that it was initially developed using older adolescents, somewhat privileged, but normal undergraduate college students at Harvard University. Its use was subsequently generalized to all other age groups, and finally to clinical psychiatric populations (Morgan and Murray 1935). By the middle of the twentieth century, the TAT was a well-established part of any comprehensive psychological evaluation. Its use with adolescents continues to be universally recommended for any type of clinical assessment or psychoeducational evaluation (Crespi and Politicos 2008; Kroon et al. 1998) because of the range of developmental challenges posed by the TAT cards.

Using the Thematic Apperception Test reflects the paradox inherent to all of the projective techniques. It is a deceptively simple projective technique to administer and yet a challenging technique to learn to interpret. There is no simple or standard interpretative model. However, most clinicians continue to use broad psychoanalytic principles to make sense of a person's TAT narratives, originally referred to as *fantasies* (Rossini and Moretti 1997). The TAT requires a person to make up imaginative stories in response to a series of achromatic pictures of intentionally varied ambiguity and emotional content. Along with the more controversial Rorschach Inkblot Method (RIM; Weiner 1994), the TAT is classified as a projective technique, which differentiates it from highly structured psychometric tests that are often designated as self-report inventories. Additionally, both the RIM and the TAT require elaborated verbal responses to challenging visual information-processing tasks in contrast to the simple true/false format of many paper-and-pencil tests. More apropos, both techniques share a fundamental conceptual similarity, based on the inferred *projective hypothesis* (Frank 1939). The projective hypothesis asserts that in novel and ambiguous problem-solving situations, people can only rely on their own idiosyncratic personality resources to adapt and, conversely, remain vulnerable to any limitations or personality deficits in their problem-solving attempts (e.g., clinically anxious people "see" the world more anxiously than non-anxious people experiencing the exact same situation). Projective techniques seem to be able to elicit a person's unique adaptive as well as maladaptive tendencies.

The less structured projective techniques such as the TAT allow for more open-ended and elaborated verbal response than more structured projective techniques such as the various forms of Incomplete Sentence Techniques. This elaborated response, open-ended format often yields responses that are more unique or idiosyncratic than those that can be elicited by self-report inventories. However, in most comprehensive clinical evaluations, both projective techniques and more focal self-report inventories are used.

The TAT was developed within an early twentieth century psychoanalytic tradition strongly influenced by the analytical psychology of C.G. Jung. It was introduced in a medical journal for psychoanalytically oriented psychiatrists. Both the original test manual and the TAT plates themselves have remained unchanged for nearly 75 years. Henry Murray did not develop the TAT by himself, but in close collaboration with a team of other prominent personality psychologists at the Harvard Psychological Clinic. At that time, the Harvard Psychological Clinic was both a mental health center and a personality research institute. Historians of psychology now universally credit Christiana Morgan, a Jungian-influenced artist and lay psychoanalyst, as a seminal coauthor of the original test (Morgan and Murray 1935). Morgan's name was dropped from later editions of the test manual without explanation.

Later biographies of both Murray (Robinson 1992) and Morgan (Douglas 1993) attribute her removal as principle coauthor of the TAT to Murray's disenchantment with their complex, dysfunctional intimate relationship, rather than to any theoretical or professional differences.

The Thematic Apperception Test consists of 31 large (9 3/16 × 10 7/8 in.) achromatic pictures or cards that were adapted from works of art, photographs, or unique drawings (e.g., Christiana Morgan drew six of the standard TAT cards). Historians have identified the source material for nearly all of the cards. For example, the most famous TAT card (Card 1) is based on an early photograph of the child violin prodigy, Yehudi Menuhin. The majority of the TAT cards portray provocative or challenging interpersonal situations involving a full range of couple (dyadic) or family-based dilemmas, while others portray seemingly pensive or threatened solitary figures, or even unpopulated landscape scenes. The numbered sequence of TAT cards starts with relatively old fashioned, but fairly realistic scenes (e.g., Card 2: a farm family at work). The cards progressively become more fantastical and affectively provocative. Some of the cards are quite evocative (e.g., suggesting depression/suicide, death/dying images, adult sexuality). Others are neutral in affective tone and yet sufficiently ambiguous, open to the client's subjective interpretation. One of the cards (Card 16) is totally unstructured, being simply a blank white card. The client creates a story completely from his or her imagination without visual cues or structure. The resulting story is thus considered the most idiosyncratic and potentially the most revealing.

In typical use, an assessment client is presented with a smaller subset of the 31 possible TAT cards, usually between 10 and 12 cards, and asked to create a long story for each. TAT research tends to use between four and six cards selected for highly specific purposes (e.g., to measure the need for Intimacy). The created story is to be based upon on what person sees in the card, what the characters are thinking and feeling, and what the future holds for each of the characters in the narrative. No special administration guidelines or modifications apply to adolescent patients, other than the selection of TAT cards and their ordering. Ideally, the series of stories told by the individual is audiotaped by the examiner. This preserves a verbatim narrative text. More importantly, it also retains the affective tone that may be present in the individual's voice quality (e.g., sadness, joy, anxiety), as well as indications of emotional disruption and cognitive slippage (e.g., mispronunciations, long pauses in the storytelling, internal contradictions) elicited by the card's content.

Henry Murray originally classified the cards into those for general use as well as a smaller subset that were gender-specific with age-level recommendations. However, the use of "Female" or "Male" cards as well as those recommended exclusively for use with children or adolescents has largely been abandoned in assessment practice. Clinicians inevitably select the cards they find most useful. Major authors writing about the TAT have developed a remarkable consensus about which cards to use. Some TAT cards are used in all evaluations, regardless of the client's age or referral question (e.g., Cards 1 and 2). Other cards have been largely abandoned in clinical practice because of their limited utility (e.g., Card 12BG) or because either the manifest content and/or the inferred latent stimulus has become outdated or deemed absurd in contemporary theory (e.g., the latent male homosexuality of Card 9BM).

In theory, the Thematic Apperception Technique draws upon a familiar narrative tradition of putting into stories a range of conscious and less than conscious personal imaginings and experiences. Cross-cultural studies indicate that human beings have a powerful storytelling tendency that appears universal and perhaps defining of what it means to be human. Murray's genius was (a) to realize the importance of storytelling and the ways in which the personal stories are told say something about who we are as unique individuals, and, (b) to invent a relatively brief, standardized method of generating a series of personal narratives. Just as an author's poetry or fiction can be examined for recurrent themes, most clinical psychologists believe that people's lives have recurrent themes, and that the person's life plots and characters tell us a great deal about who individuals really are, and what they struggle with in life. One school of contemporary personality theory is largely based upon the narrative life story model for understanding both normal individuals and psychiatric patients (McAdams 1993). Through an analysis of the stories told to the TAT, a well-trained assessor can be led to underlying variables in the individual's personality, such as drives,

sentiments, emotions, complexes, human social motives, defense mechanisms, and other motivational forces. Contemporary personality theorists refer to this extensive series of personality dynamics as one's characteristic adaptations to the interpersonal environment.

The major developmental task of adolescence has been traditionally defined as the establishment of an autonomous identity following successful separation–individuation from the family-of-origin's direct influence and control. The developmental model proposed by lay psychoanalyst Erik H. Erikson provides the most explicit statement of the most age-appropriate psychological challenge of middle adolescence. As with all of the eight developmental stages in Erikson's lifespan model, it poses a dichotomous dilemma or challenge to be resolved. For adolescents it is the Identity vs. Identity Diffusion conflict. Establishing an adaptive personal Identity, and avoiding the maladaptive Identity Diffusion outcome, actually depends on the successful navigation of a complex series of interrelated developmental tasks beginning in later childhood and continuing into late adolescence. These developmental challenges or steps toward identity consolidation have been poetically enumerated in Bettelheim's (1975) psychodynamic cadence:

> In order to master the psychological problems of growing up—overcoming narcissistic disappointments, oedipal dilemmas, sibling rivalries; becoming able to relinquish childhood dependencies; gaining a feeling of selfhood and of self-worth, and a sense of moral obligation—a child needs to understand what is going on within his conscious self so that he can cope with that which goes on in his unconscious. (pp. 6–7)

Refining Erikson's work, and focusing exclusively on adolescent development, Canadian developmental theorist James E. Marcia identified four possible Identity Statuses of psychological identity development (Marcia 1966). As with Erikson's model, an adolescent's sense of identity is ultimately determined largely by the resolution of age-appropriate psychosocial *crises* (i.e., critically evaluating one's values, beliefs, and ambitions) leading to unique personal *commitments*. It is an interaction between that person's basic personality traits and social motives/needs and a person's active engagement with the larger social and peer culture. Using a comprehensive semi-structured interview, Marcia proposed a continuum of four possible, increasingly adaptive, resolutions to the adolescent identity crisis: Identity Diffusion, Identity Foreclosure, Identity Moratorium, and Identity Achievement. This is not a stage model and these resolutions are viewed as discrete and relatively permanent, and not viewed as normal sequential process ultimately leading to Identity Achievement. Adolescents who consolidate the earlier (more immature) forms of identity are considered more psychologically vulnerable and constrained to lead more limited adult lives than those adolescents with more sophisticated identity formations.

The emotionally laden and interpersonally charged TAT cards provide a potential window into the adolescent's conscious struggles or active avoidance of each of these developmental issues (and others such as sexuality, achievement motivation, and aggressive impulse control). The adolescent is confronted with these issues consciously through the manifest content of each TAT card while the inferred unconscious conflict/challenge is concurrently stimulated via the inferred latent content of each TAT card. For example, the most famous of the TAT cards (Card 1) presents a portrait of a young boy looking at a violin and sheet music on a table in front of him (manifest content). The latent content stimulates an adolescent to consider a range of achievement conflicts (i.e., internal vs. external achievement motivation), competency/mastery issues, and the problems inherent in delayed gratification. In another famous card (Card 2), an adolescent female student observes what appears to be a family farm scene, but the latent content actually stimulates one's struggles with separation–individuation from the family-of-origin. Sensitive adolescents' narratives to Card 2 include struggles with ambivalence about separation–individuation and personal ambition (i.e., having a better life than one's parents) coupled with gratitude for the opportunities provided by the sacrifices made by one's parents. Maladaptive TAT narratives can include ignoring those obvious themes, not perceiving a family-based situation, or focusing on the also stimulated Oedipal or heterosexual competition. While less overt in provocative content than other projective techniques such as the near caricatures of the overtly psychoanalytic Blacky Pictures, classical Freudian dyadic and triadic interpersonal conflicts are portrayed in some of the TAT cards.

Using the TAT with adolescents requires no administrative modifications. However, several modifications have been found especially useful with adolescents. For example, Peterson (1990) provided a useful alternate TAT administration format based on developmental psychoanalytic theory that is especially relevant for children and adolescent patients. He rearranged the sequence of the TAT cards in the order of the psychodynamic developmental issues stimulated by them, and then invited the patient to collaborate in a self-interpretation of the narratives. This collaborative model has considerable merit, especially among test-resistant adolescents such as those seen in involuntary juvenile justice evaluations and with younger and more defensive adolescents. By involving the adolescent in the interpretation of his or her own stories, a collaborative bridge can be created between assessment and subsequent psychotherapy. Henry Murray had this collaboration in mind when he created the TAT. Leopold Bellak (Bellak 1999; Bellak and Abrams 1997), whose authoritative ego psychological approach to the TAT has influenced generations of clinicians, has been the seminal figure advocating the therapeutic potential of the TAT. More recently, this interactive process of using test scores and related clinical hypotheses as vehicles of personal growth has been rediscovered and actually named Therapeutic Assessment (Finn 2002).

The most significant recent research development on the adolescent TAT has been the development and clinical use of the Social Cognition and Object Relations Scale (SCORS; Conklin and Westen 2001; Kelly 1997). This objective coding system rates each TAT story on a variety of psychoanalytic dimensions useful in the identification of adolescents with severe, but often masked, forms of psychopathology, such as borderline personality disorders, self-harm potential, and/or disorders of basic interpersonal relatedness. The SCORS measures four dimensions of object relations: Complexity of Person Representation, Affective Tone of Relationships, Emotional Investment in Relationships and Moral Standards, and Understanding of Social Causality. Each dimension is rated along a 5-point scale, with higher numbers reflecting more mature level of object relatedness and adaptive psychological functioning. These quantitative ratings have been shown to have acceptable psychometric properties, obviating some of the critiques of standard TAT interpretation. However, the use of the SCORS seems limited to adolescent psychopathological research and perhaps clinical use among inpatient assessments and among adolescents in long-term residential treatment.

Even after all of these years of continuous popularity and clinical use, the TAT remains controversial within professional psychology (Lilienfeld et al. 2000). An endless debate among academic psychologists focuses on whether many scoring systems developed to classify aspects of TAT narratives have sufficient psychometric characteristics (e.g., reliability and validity) for routine use. Jenkins (2008) provided an exceptionally useful handbook reviewing all of the major TAT scoring systems. TAT advocates sidestep this controversy by acknowledging that the TAT is not a psychometric test, but a *technique* that is rather analogous to a semi-structured interview. The development, theoretical basis, and some practical aspects of teaching and learning TAT interpretation have been discussed elsewhere at length (Moretti and Rossini 2004). What is certain is that the Thematic Apperception Test remains a useful and widely used personality assessment technique with adolescents.

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Theory of Mind

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Theory of Mind (ToM) refers to the cognitive ability to infer and understand the mental states of others as well as one's own. These mental states involve, for example, evaluations relating to beliefs, intentions, desires, pretenses, knowledge, and thinking. First used by primatologists and psychologists Premack and Woodruff (1978) who asked whether the chimpanzee had a theory of mind, the term has become an important part of developmental theory, especially as it relates to early childhood development. In more common parlance, what ToM refers to is the ability to read someone's mind (including one's own) or simply the ability to understand others. Several different terms have now been coined to refer to aspects of the ability to infer mental states or to the theory of mind itself. *Metarepresentation*, for example, has been coined to focus on the mental representation of an individual's representation to themselves and to others as beings who mentally represent external reality (Frith and Frith 2006), and *mentalizing* is used to emphasize the actual deployment of an individual's theory of mind (Langdon and Coltheart 1999). These different terms serve to highlight different processes and aspects of the ability to infer and understand mental states that tend to fall under the general research rubric ToM.

Developmentalists tend to assume that the capacity for understanding others is, on average, well established by the time the child reaches 4 or 5 years of age. This may well be the case, but it also may be the case due to the nature of the tasks that are used to assess it are more suitable to that age range rather than to older age groups. The basic ability to understand and infer intentions arguably is enriched on the basis of further experiences as individuals mature, but that enrichment has not been the subject of much research from a ToM perspective (see Dumontheil et al. 2010). Few studies have examined the nature and development of theory of mind beyond early childhood (e.g., Perner and Wimmer 1985; Dumontheil et al. 2010). The major exception to that lack of focus on adolescents and adults has been research dealing with psychopathology, including the study of several sociopathological conditions, such as autism and schizophrenia (Baron-Cohen 1995, 2001; Flavell 1999) and brain injuries (Snodgrass and Knott 2006).

The developmental focus on the ToM, including research relating to psychopathology, is increasingly on brain development (see Frith and Frith 2001). Brain imaging studies, for example, reveal that the ability to represent one's own and other people's mental states implicates a network of areas linking the medial prefrontal and temporal cortex. Importantly, the medial prefrontal areas also figure prominently in tasks that involve self monitoring; and the temporal regions also act prominently in tasks that involve the representation of goals and actions. Given the function of these regions, it is no surprise to find that research

seeking to understand the neurological aspects of ToM increasingly includes efforts to understand how the brain links representations and actions, in addition to understanding the nature of those representations. This line of research appears quite important to the study of adolescence in that a large number of neuroimaging studies reveals that brain regions critically involved in mental state attributions (in particular, medial prefrontal cortex and lateral temporo-parietal regions) develop both structurally and functionally well into the second and third decades of life (see Blakemore 2008; Shaw et al. 2008. Given that ToM relates closely to the brain's abilities (as has been highlighted well by research investigating psychopathology and brain injuries), studies of brain functioning and structures reasonably lead to the expectation that theory of mind develops as the brain matures. These fields of study make interesting the possibility of research relating to adolescents' ToM.

Although researchers who directly study ToM have essentially ignored the study of adolescence, research on adolescence has long addressed some of the issues that now energize ToM research. ToM enables the understanding of mental states that relate to others' behaviors, and thus is important in the ability to explain and predict how others behave as well as how they think. This is of significance in that minds are not directly observable, and understanding one's mind requires relying on the capacity for introspection and using that capacity to understand others. In a real sense, people need a functional theory of mind to be able to interact effectively with others; otherwise they could not understand their intentions, beliefs, and desires. From this perspective, components of adolescents' ToM already have been studied variously through the study of social skills, social anxiety, mental illness, and mental disabilities (e.g., van den Bos et al. 2010, including brain trauma (Turkstra et al. 2004 and interventions that aim to develop youth's social skills by focusing on their ToM (see Ozonoff and Miller 1995). The potential reach of the study of ToM, particularly the different disciplines that it brings together, makes it an important and promising area of research in the study of both typical and atypical development during adolescence.

Cross-References

► Social Brain
► Social Cognition

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Therapeutic Foster Care

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Therapeutic foster care is a form of mental health service delivery for youths who cannot be served in their own homes. The approach was developed as a way to offer the least-restrictive and most-integrated out-of-home mental health services as it provides an alternative to institutional

care, group and residential care, and incarceration. Typically, the approach involves using a team planning process to put in place an intensive, individualized, strength-based plan of care. Specially trained therapeutic foster parents implement therapeutic care through a home-like environment. Like foster care in general, therapeutic foster care aims to return children to their homes or to a permanent placement in a home-like setting. The hoped-for transition out of therapeutic foster care, then, necessarily means that programs provide services not only to the child but also, where appropriate, to the child's family.

The hallmark of therapeutic foster care is the establishment of a positive therapeutic relationship (see Hahn et al. 2005; Curtis et al. 2001), although reviews of therapeutic foster care have noted the multiplicity of names and of program content, including diverse therapeutic approaches (Meadowcroft 1989). Despite considerable diversity, therapeutic foster care entails extensive preservice training, in-service supervision, and in-service training for providers. It also involves planned treatment combining aspects of restrictive treatment settings and nonrestrictive foster-family settings as well as intensive support services for the treatment parents, crisis intervention services, and coordination of children's system of care, including education. Under this treatment modality, treatment parents provide home-based treatment for troubled youth by combining the roles of a nurturing parent with a treatment provider. It is the therapeutic relationships that are associated with positive outcomes for youth, a point worth emphasizing since approximately 30% of children in foster care have severe emotional, behavioral, or developmental problems that are addressed by a variety of therapeutic interventions that, as reviews reveal, typically fail to consider the unique experience of foster children and foster families (Craven and Lee 2006).

Studies of therapeutic foster care report that the quality of therapeutic relationships significantly associate with treatment outcomes (see, e.g., Hahn et al. 2005), results that find support from meta-analyses of therapeutic relationship constructs in the youth treatment literature (Karver et al. 2006). These links have been found across treatment type, child developmental levels, gender, age, or race. Importantly, however, youth who exhibit externalized symptoms demonstrate better outcomes than those with internalized symptoms. Factors thought to contribute to youth's emotional and functional outcomes in this form of care include pretreatment characteristics of the child and parent, the child's clinical characteristics, program/provider characteristics, and the therapeutic relationship itself. Youth served through therapeutic foster care instead of in institutional care are deemed to have more sustained mental health improvements, a decrease in behavioral problems, reduced involvement with the criminal justice system, and more quick and successful placement in their communities. These findings certainly suggest that important benefits can accrue to those involved in this form of treatment.

Importantly and despite impressive research outcomes, some forms of treatment care may not lead to these positive outcomes, and the models many use to tout the benefits of therapeutic care, such as short-term transitioning or reunification with families, may not be widely implemented or relevant in practice (see Farmer et al. 2003). Indeed, research highlights how even though this area of research does offer optimistic findings, the potential benefits may not translate to reality in that effective systems that serve as models are not always implemented. In a recent study assessing the quality of services in therapeutic foster care programs in one county in the United States, for example, researchers reported important failures (Pavkov et al. 2010). Among the failures noted were the failure to provide services and to adhere to national program model standards and even state regulations. These are sobering findings that highlight the need for greater and consistent monitoring of agencies involved in providing care and in the need for research examining links between the actual provision of services and youth outcomes. These findings are consistent with other evaluation studies that note how several interventions are found to be effective, but the most effective ones tend to be linked to research studies, a finding indicating the hazards that come with the implementation of programs that may not remain faithful to evidence-based practices (Levesque 2008).

Therapeutic foster care, a form of child welfare served delivery founded on the potential benefits that can emerge from relationships between the child and the treatment parents, continues to gain attractiveness as an intense and individualized treatment option for children with severe behavioral and emotional problems. Despite some criticisms, this

family-based, residential mental health treatment option has been established as an evidence-based practice (the gold standard in mental health treatment) that is cost-effective, has clinical merit, and has the added benefit of being one of the least-restrictive forms of interventions in youths' lives. Not surprisingly, in the United States, therapeutic foster care has been endorsed by the federal government and is considered an essential component of a comprehensive children's mental health system (see U.S. Department of Health and Human Services 2000, 2001). Available evidence and support given to this form of care, as well as the well-established need for it, render it difficult to play down its promise.

Cross-References

► Foster Care

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Thought Disorder

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Thought disorder (sometimes referred to as formal thought disorder) refers to a pattern of disordered language that presumably reflects disordered thinking. The term applies specifically to the presumed disruption in the flow of conscious verbal thought that is inferred from spoken language. It is not meant to refer to delusions (firmly held false beliefs) or hallucinations (distortion in a person's perception of reality, typically accompanied by a powerful sense of reality) of psychosis, which also could be considered disorders of thought processes. Thought disorder is considered a symptom of psychotic mental illness (especially schizophrenia), although it occasionally appears in other conditions (such as depression).

The psychiatric literature contains many distinct concepts that describe disordered thinking (see Rule 2005). For example, formal thought disorder refers to a disorder of the form of thought, as opposed to its content. *Paralogia* is defined as "positive thought disorder" (intrusion of irrelevant or bizarre thought); and *alogia* (also known as laconic speech) refers to "negative thought disorder" or poverty of thought as expressed in speech. Desultory thinking jumps from one idea to another without logical connections. Derailment refers to an unexpected change of direction of a "train of thought" that "derails" onto a subsidiary idea. *Tangentiality* describes a related concept in which a person's thoughts move off in an unexpected direction, never to return, in response to a direct question. *Paragrammatism* (the wrong use of grammar) and *parasyntax* (the wrong use of syntax) are the inappropriate use of words that render speech difficult to understand due to a breakdown of grammatical/syntactical construction. Condensation involves the blending of two ideas with something in common into a single, false concept. In displacement or substitution, an idea is used for an associated idea. Omission involves the leaving out of a thought from speech, a process similar to blocking in which thoughts suddenly end uncompleted. Incoordination refers to a breakdown of connections between thoughts.

Interpenetration involves an unwanted intrusion of unrelated themes into a thought, while overinclusion describes the inability to convey specific ideas due to the inability to maintain the boundaries of a thought. Unintelligible speech is often used interchangeably with such terms as driveling, muddling, verbigeration (the senseless repetition of words or phrases), word salad, speech confusion, and incoherence. Perseveration is the repetition of words or phrases beyond the point of relevance. *Tachyphasia* refers to pressured, abnormally fast speech; and *logorrhea*, which is an increased amount, rather than rate, of speech (such as verbosity). Flight of ideas describes the rapid movement between ideas that are difficult to follow. Numerous other terms exist, and all point to the challenges of understanding difficult-to-follow thought processes.

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Thriving and Sparks

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Overview

For adolescents, the predominant criterion for judging developmental success, for most of the history of the psychology of adolescence, has been, until quite recently, whether young people avoid mortality and morbidity in the form of a litany of specific risk behaviors, ranging from avoidance of school failure, to avoidance of substance abuse, antisocial behavior and violence, and irresponsible sexual behavior. Only in the last 20 years or so has the growing movement called Positive Youth Development (PYD), with its focus on promoting desirable attitudes and behaviors and not only preventing undesirable ones, gained such sufficient traction that PYD can now be said to be a principal theoretical and applied framework for understanding and working with adolescents. In this essay, the authors describe the development of a comprehensive theory and measurement of a new element of PYD, adolescent *thriving*, as most recently advanced by Benson and Scales (2009), including the central role of a young person pursuing their deep passions and interests – their "sparks," the metaphor used to describe the internal animating force that propels development forward. With a series of both quantitative and qualitative studies, both nationally representative and more purposive, a foundational understanding has been established that, when youth have sparks and a thriving orientation, numerous developmental and social benefits are experienced, both by young people and by the contexts they inhabit. Unfortunately, it also has been shown that only a minority of young people in the USA experience both sparks and high levels of support to develop those deep interests, such that only a minority can truly be said to be thriving.

What does it mean to say an adolescent is "thriving?" As has been previously noted (Benson and Scales 2009), the term itself is a fairly recent addition to the vocabulary of adolescent psychology, having typically been used only in reference to newborns, and the degree to which, through the APGAR tests, they exhibit the salient defining signs of neonatal wellness. For adolescents, the predominant criterion for judging developmental success, for most of the history of the psychology of adolescence, has been, until quite recently, whether young people avoid mortality and morbidity in the form of a litany of specific risk behaviors, ranging from avoidance of school failure, to avoidance of substance abuse, antisocial behavior and violence, and irresponsible sexual behavior. Only in the last 20 years or so has the growing movement called Positive Youth Development (PYD), with its focus on promoting desirable attitudes and behaviors and not only preventing undesirable ones, gained such sufficient traction that PYD can now be said to be a principal theoretical and applied framework for understanding and working with adolescents. Indeed, it was not until the most recent edition (2006) of the *Handbook of Child Psychology* that a chapter on positive youth development was ever included (Benson et al. 2006).

PYD asks not, what conditions prevent negative youth outcomes, but instead what conditions promote healthy, caring, successful youth? Although a welcome balancing weight to the traditional view of young

people as reflecting largely potential problems to be prevented, even a PYD frame of reference can limit the field's vision of development to what is "good enough" for young people to do "okay." In this vein, it has been argued that much of the implicit connotation of the term "competence" in the psychological literature, although intended as a positive description, has the unfortunate consequence of focusing attention on adolescents' "okay-ness" or adequacy more than on their *optimal* development (Benson and Scales 2009). Similarly, the concept of resilience only takes us part of the way in its emphasis on overcoming threats to development, or returning to a status of adequacy (Masten and Obradovic 2006).

Since 1990, Search Institute has articulated and studied the framework of developmental assets, a theory-based model that links features of ecologies with personal skills and capacities, "guided by the hypothesis that external and internal assets are dynamically interconnected 'building blocks' that, in combination, prevent high risk health behaviors and enhance many forms of developmental success (i.e., thriving)" (Benson et al. 2006, p. 906). The 40 assets are grouped heuristically into eight categories of support, empowerment, boundaries and expectations, and constructive use of time (relationships and opportunities adults and peers provide for young people); and commitment to learning, positive values, social competencies, and positive identity (values, skills, and self-perceptions that young people develop in their gradual movement toward self-regulation). More than 2,000 studies, both those of institute researchers and of other scholars, have been reviewed and synthesized to show that the specific 40 assets described by Search Institute, and similar asset-like constructs named by other researchers, are associated with a host of risk prevention and health and resilience promotion outcomes, both cross-sectionally and longitudinally, in early childhood (VanderVen 2008), middle childhood (Scales et al. 2004), and adolescence (Scales and Leffert 2004). Throughout the last two decades, studies have repeatedly connected young people's experience of the developmental assets with various indicators of thriving, but the authors' conceptualization of thriving has evolved considerably over that period.

In a series of publications, the concept of thriving as an expression of young people's developmental best was gradually elaborated. Thriving was initially described as how well young people were doing on a series of positive indicators, including good grades as a measure of school success, how much they help others, whether they value diversity, how much they can overcome adversity, whether they exhibit leadership, maintain physical health, and can delay gratification (Benson 1990; Scales et al. 2000). These indicators were selected for their face validity in meeting Takanishi et al's (1997) primary criterion for successful adolescent development, that of attaining social competency for adult roles and responsibilities. Thus, despite the use of the term "thriving," this early exploration of thriving, though accenting positive outcomes, still was rooted in a notion of competence, of adequate more than optimal development. And although since 1990 the Search Institute definition of thriving included clearly prosocial indicators, such as helping others and valuing diversity, it was not until 1998 that the institute drew out an explicit connection between individual and social well-being (Benson et al. 1998), a connection that Lerner and colleagues would later stress even more centrally in their discussion of thriving as the basis for personhood and civil society (Lerner et al. 2002). Search Institute's early studies using these indicators showed that there was a strong connection between the accumulation of developmental assets and thriving: The more assets young people reported, the more likely they also were to report thriving (Benson 1990; Benson et al. 1999; Scales et al. 2000).

From 2002–2005, a partnership among Search Institute, Tufts University's Institute for Applied Research in Youth Development, Fuller Theological Seminary, Stanford University's Center for Adolescence, and the Thrive Foundation for Youth – the Thriving Indicators Project (TIP) – greatly advanced the conceptual basis and measurement of thriving. King et al. (2003) captured the first 2 years of these collaborations in describing several "meta-heuristics" that had emerged to guide the institute's evolving theorizing about thriving. Among these propositions, it was posited that thriving: (1) involves the person–context relationship; (2) is a holistic process; (3) is a developmental concept; (4) is a process versus an end state; (5) is prescriptive or value-laden; (6) involves both positive and negative aspects of growth; and (7) incorporates cultural and contextual diversity. King et al. then named several newer indicators of thriving that reflected these meta-heuristics, including

personal growth, fulfillment of one's potential, having a future orientation, meaning and purpose, emotional well-being, psychological well-being, social well-being, and individual characteristics such as initiative or caring. As part of the TIP, the researchers also collaborated to conduct studies with youth, parents, and youth development professionals, asking them to define "thriving" in adolescents. The results yielded 77 key concepts that expressed these samples' perspectives on thriving, reinforced and modified earlier thinking, and helped shaped further measurement (King et al. 2005). As a result of these collaborations, by 2005, in a chapter for the *Encyclopedia of Applied Developmental Science,* Scales and Benson (2005) noted that the early thriving indicators used in the 1990s, though defensible, were not sufficiently grounded in a comprehensive and explicitly articulated theory of thriving. Moreover, those researchers began describing thriving not simply as a point-in-time outcome, but as a developmental process: "thriving may also be understood as a developmental process of recursive cause-and-effect engagement with one's ecology *over time* that repeatedly results in optimal outcomes as viewed at any *one point* in time" (Scales and Benson 2005, p. 16, emphasis in original). Simultaneously, Lerner and colleagues strengthened understanding of the relationship between the developmental assets and thriving through a series of factor analyses (Theokas et al. 2005), and as well, extended the conceptualization of thriving in relation to developmental systems theory and the improvement in civil society (Lerner et al. 2003; Lerner et al. 2002). At the same time, Damon and colleagues were exploring the relation of purpose to thriving (Damon et al. 2003). All of these efforts from the TIP collaboration significantly contributed to the comprehensive theory and measurement of thriving most recently advanced by Benson and Scales (2009), including the central role of a young person pursuing their deep passions and interests – their "sparks" (Benson 2008). Spark is the metaphor used to describe the internal animating force that propels development forward. This broader and deeper theory, grounded in developmental systems theory, defines thriving as having three interconnected parts:

1. Thriving is the interplay over time of a young person's sparks and support from their contexts to develop and nurture those sparks.
2. Thriving is a balance between continuity and discontinuity of development over time that is optimal for the individual–context system.
3. Thriving reflects both where a young person is at the moment and whether they are on a path toward creating a person–context system in which they as individuals and the contexts they are in (e. g., families, schools, communities) are mutually benefiting (Benson and Scales 2009).

An important implication of this conceptualization of thriving is that it describes a complex balance and potential for change among person and context, progressive or discontinuous development, and outcome and process. Therefore, young people are described as more or less *thriving oriented* rather than as thriving or not thriving.

Using this elaborated theory, from 2004–2007, Search Institute developed and pilot tested a set of markers of a thriving orientation, and created the *Thriving Orientation Survey* to measure the incidence of those markers in adolescents. Exploratory factor analysis with a field test sample of more than 2,500 middle and high school youth in a suburban Ohio school district empirically supported 86% of the theoretical constructs (described in Benson and Scales 2009). The resulting set of markers of adolescent thriving orientation is shown in Table 1.

Description of Recent Sparks and Thriving Studies

The most recent Search Institute work has focused on the central component of thriving, the idea of a young person's sparks, and how much support they experience from parents, other adults, and friends to identify and nurture their sparks. In a series of studies, researchers initially inquired about sparks by describing them this way to young people:

- When people are really happy, energized, and passionate about their talents, interests, or hobbies, we say they have a "spark" in their life. This spark is more than just interesting or fun for them. They are passionate about it. It gives them joy and energy. It is a really important part of their life that gives them real purpose, direction, or focus.

In another question, it was noted too that one's sparks might be "writing, or science, or learning about nature, playing an instrument, being an artist, a leader,

Thriving and Sparks. Table 1 Search Institute's theoretical measurement markers of thriving in adolescence

Elements of thriving	*Measurement markers of thriving*
1. Young person	1. *Spark identification and motivation*. Young person can name, describe interests and sparks that give them energy and purpose, and is motivated to develop their sparks
	2. *Positive emotionality*. Young person is positive and optimistic
	3. *Openness to challenge and discovery*. Young person has intrinsic desire to explore new things, and enjoys challenges
	4. *Hopeful purpose*. Young person has a sense of purpose and sees self as on the way to a happy and successful future
	5. *Moral and prosocial orientation*. Young person sees helping others as a personal responsibility, and lives up to values of respect, responsibility, honesty, and caring
	6. *Spiritual development*. Young person affirms importance of a sacred or transcendent force and the role of their faith or spirituality in shaping everyday thoughts and actions
2. The young person's developmental contexts	*Opportunities and supports*. Young person experiences chances to grow and develop their sparks, as well as encouragement and support in pursuing their sparks, from multiple life contexts
	7. Family opportunities and supports
	8. Friends opportunities and supports
	9. School opportunities
	10. School supports
	11. Neighborhood opportunities and supports
	12. Youth organizations opportunities and supports
	13. Religious congregations opportunities and supports
3. Young person's active role in shaping contexts	*14. Youth action to develop and pursue sparks*. Young person seeks and acts on adult guidance, studies or practices, and takes other actions to develop their sparks and fulfill their potential
4. Developmental contexts act on the young person	*15. Frequency of specific adult actions*. How often adults do concrete things to motivate, enable, and push young people to develop their sparks and connect them to others who can help
Additional constructs measured in thriving orientation survey	
Positive developmental outcomes	Life satisfaction. Young person feels good about their life
	Positive health perceptions. Young person feels strong and healthy
	Contribution to social good. Young person volunteers or does things to make their world a better place
	School success. Young person earns a B or higher average in school
	Values diversity. Young person considers it important to know people of different races
	Leadership. Young person has been a leader in a group or organization in the last 12 months

or helping others. The sparks are not just about things you like to do, like being with friends or riding a bike." True sparks are described to young people as giving them a sense that their life has a purpose or direction.

Based on this conceptual and measurement development of the scholarly territory, what is known about thriving and sparks among America's adolescents?

Several national studies are illuminating. In 2005, Search Institute conducted a nationally representative Gallup Poll of more than 2,000 12–17-year olds and 2,000 of their parents (as described in America's Promise Alliance 2007, and Scales et al. 2008). A brief measure of thriving was represented by two questions. The first was "I have a special talent or interest that gives me joy and energy, and is an important part of who I am." Results enabled the estimation of the proportion of young people nationwide who have the kind of "spark" that reflects thriving youth. These two dimensions of spark (interests that provide joy and energy, as well as importance to identity) may have lifelong relevance. The Harvard Study of Adult Development has followed both socioeconomically advantaged (Harvard graduates) and disadvantaged (inner-city) samples of men from adolescence to age 75 and found a similar pair of factors – enjoyable activities and a sense of purpose – related more to happiness in retirement than good health and a large income did (Vaillant et al. 2006).

Those young people who said this description of spark was "mostly" (12–14-year olds) or "completely" like them (15–17-year olds) also were asked "how many adults know about your special interest or talent and help you pursue it?" Adolescents could respond with none, one, two, or three or more. With their responses, an estimate could be made of the proportion of young people nationwide who had adequate support (defined as three or more adults) to develop their "sparks."

Search Institute also worked with Harris Interactive, a division of the Louis Harris polling firm, to design a 12-question quantitative survey on thriving (one question, asking adolescents to describe the nature of their sparks [e.g., creative arts, sports, reading], was open-ended). A national sample of more than 1,000 11–17-year olds drawn from an ongoing online panel participated in this survey in 2005. This survey provided data on issues such as how often young people experience and get to express their sparks, how much specific life contexts – family, friends, school, religious congregation, youth organizations, and neighbors – help them develop their sparks, whether young people perceive themselves as being on the way to a happy and successful future, and whether they feel a sense of purpose in their lives. There were two foundational "spark" questions used in this study:

- Do you have a special talent or interest that gives you joy and energy, and is an important part of who you are?

  When people feel that joy and energy, we sometimes say they have a "spark" in their lives. It might be writing, or science, or learning about nature, playing an instrument, being an artist, a leader, helping others, etc. The sparks are not just about things they like to do, like being with friends or riding a bike. The sparks give a person a sense that their life has a purpose or direction. Do you have this kind of spark in your life?

The following question gave a sense of how much parents, friends, and people at school, religious organizations, and elsewhere in young people's lives help them develop their sparks:

How much does each of these help you grow and develop your sparks?

1	2	3	4
Not at all	Very little	Some	A lot
1. People at your school			
2. People at your church or religious organization			
3. People at the youth organizations (like Boys and Girls Clubs, or the YMCA), clubs, or teams you participate in			
4. Your neighbors			
5. Your parents or other family members			
6. Your friends			

With the market research firm Just Kid, Inc., institute researchers also designed a 3-day long Internet-based bulletin board discussion in 2006 among teenagers on the subject of thriving. About 405 teenagers aged 15–17 participated, including about 20% who were African American or Hispanic. They were identified from a national Internet database of adolescents through an online screening survey that was developed to roughly segment participants into those who, on the basis of that brief screening survey, appeared to have a supportive environment for thriving (connected to after-school programs, close to their families, know

nonfamily adults they trust, etc.), and those appearing to have less supportive environments. The moderated discussion gathered extensive qualitative information about how young people described their "sparks," how their environments help them or discourage them from thriving, what they personally sacrifice in order to pursue their sparks, how one can tell if a teenager is thriving, and numerous other topics related to thriving. These data enabled deep thematic exploration of thriving in young people's own words. The foundational "spark" question asked in this study was:

- Some teens your age have spark in their life. This spark can be a talent or interest like writing, an interest in science or nature, playing an instrument, being an artist or actor, leading others on a project, helping others, etc. This spark is something they are passionate about, really fires them up, gives them joy and energy, and is an important part of who they are. Teens with spark might have a goal they want to achieve with this spark and might have overcome obstacles and challenges in pursing their spark. The spark is not just about things teens your age like to do, like hanging out with friends, dating, playing video games or riding a bike. Spark is something that gives a person a sense that their life has purpose and makes them feel whole. Some teens might have more than one spark in their life. [No response required]

  Tell me whether you feel you have a spark or sparks (more than one spark) or not by typing yes, or no.

A series of questions was asked in this study to get at the kind of support young people experience for developing their sparks, a general one about role models, and several questions specifically asking about the role of family, school adults, neighborhood adults, adults in religious organizations, and "any other adults." The data were analyzed, using the Nvivo qualitative analysis software, to answer the following questions:

1. What does thriving look like in young people? How do young people find their talents or "sparks" and how do they get nurtured and developed?
2. What characteristics do thriving young people have compared to youth who are not thriving as much?
3. What do adults do or not do that helps or hinders the development of spark/thriving?
4. What do young people themselves do that nurtures their sparks and keeps them moving along a path to a hopeful future?

More recently, Search Institute worked with Harris Interactive again, and with the Best Buy Children's Foundation, to conduct the Teen Voice 2009 and 2010 online studies of 15-year olds' sparks, sense of empowerment, and relationships and opportunities (Scales et al. 2009). A representative sample of 1,817 US residents age 15 was surveyed online in the first study, and 1,860 in the second. Data were weighted by Harris Interactive researchers to reflect the population of 15-year olds in the USA according to three race/ethnicity groups: Hispanic, Black/African American, White/Other (including Asian/Pacific Islander). Each group was weighted according to key demographic variables (gender, race/ethnicity, region, and parents' highest education [a proxy for household income]). These variables were weighted to known parameters in the USA. A post-weight was applied to bring the data from all three groups in line with their proportion in the total population of 15-year olds in the USA, based on race/ethnicity, and gender. Here is how sparks were asked about in the most recent Teen Voice study:

- Next, we would like to learn about the spark in your life. "Sparks" are interests or talents you have that you are really passionate about. When you are involved with those sparks, you have joy and energy. You are not bored, and you might lose track of time because you are so involved in what you are doing. A spark is a really important part of your life that gives you a sense of purpose or focus.

  Do you have at least one spark in your life?

Note that, although some elements of the sparks definition have shifted over the years in the differing questions used, the inclusion of sparks being things one is passionate about, that provide joy and energy, are important, and provide a sense of purpose, have consistently been a part of how sparks are described.

Findings About Sparks and Thriving Among American Youth

Extent of Sparks and Thriving

Together, these varied sources of data reveal quite a bit about the landscape of thriving and particularly about sparks, among American adolescents. First, when one combines the measure of having sparks and the measure of support for sparks, into a brief proxy for

thriving, it can be concluded that most youth probably are not thriving (see Table 2). Although the component elements of "thriving" (talent/spark plus support) used different wording in the National Promises Study and brief Harris surveys, and produce different percentages having the components, the percentage of youth having the "thriving" variable resulting from combining the two components is very similar: 47% for NPS and 41% for Harris. This suggests reasonable confidence in saying that, by this definition of spark plus support, no more than about half of American teens probably are "thriving." In the Just Kid sample as well, 66% said they had a spark or sparks that "fire" them up, and give them joy, energy, and purpose. Similarly, in the Teen Voice 2009 study, an identical 66% said they had a spark. Thus across several different studies, whether national or more purposive samples, the most common result is that about two-thirds of adolescents can name a *spark*. But further exploration shows that not all of those youth have support to develop their sparks, so that the proportion who can be said to be *thriving* is substantially less.

Nature of Youth Sparks

Table 3 below shows how young people described their sparks in the Teen Voice 2009 survey. Similar lists of categories have been compiled in the institute studies. Although the percentages naming sparks in the various categories differ across the studies, due to differences in question wording (e.g., see a somewhat different listing in Benson 2008), these results consistently show that sports (more for boys) and the creative arts (more for girls) are the most common categories of the deep interests and passions that act as sparks in young people's lives. This is a particularly key finding given that schools are a principal provider of such connection to creative arts and sports, and yet, those activities are among the most vulnerable when schools and districts are faced with budget-tightening choices (Cavanagh 2009; Zakaras and Lowell 2008). For many youth, those sparks, supported through cocurricular after-school programs, are not only valuable in their own right through their linkage with positive developmental outcomes (see below) – they also are for many students a pivotal way in which they are connected to the academic offerings and mission of school.

A second point worth noting from Table 3 is that, although sports and the creative arts are the "big two" areas of sparks, nearly half of young people's sparks are not in those areas. Young people's deeply felt interests and passions reflect a wide variety of pursuits, from business and inventing, to computers and electronics, religion and spirituality, animals, and involvement in social issues. In fact, more than 200 different types of sparks have been cataloged from the descriptions young people offer (Benson 2008). Thus, if thriving is maximally to be promoted, it is important for families and communities to expose young people to, and maintain policy and financial support for, a wide variety of programs and opportunities that can enable youth to find and nurture their unique sparks.

Support for Developing Sparks

The brief 2005 online study with Harris Interactive also showed that although almost all young people report having at least a few adults who help them to develop their talents, most of those adults appear to be in their families. In that research, it was concluded that *no more than a third of young people said adults outside the family, in settings such as their schools, religious congregations, or youth organizations, help them develop their talents "a lot," and hardly any youth said adults in their neighborhoods help them a lot*. Older male teens ages 16–18 were especially unlikely to say they get a lot of help in developing their talents or interests.

The much more comprehensive Teen Voice 2009 study found essentially the same patterns. A key to

Thriving and Sparks. Table 2 Percentage of thriving youth: national promises study and 2005 SI-Harris Poll

Study	Special talent/ interest	Adult support	% Have spark	% Thriving
National promises study (12–17-year olds)	54 (completely like me)	80 (three or more adults)	–	Talent × support = 47
Harris (11–18-year olds)	79 (yes–no)	59 (at least "some" adults)	69% (with a special talent strong enough to be a spark)	Spark × support = 41

Thriving and Sparks. Table 3 Types of sparks, Teen voice 2009 study

Know they have sparks	Type of sparks (among those who have sparks)	(%)	
Yes			66
	Participating in sports, athletics, or other physical activities	28	
	Participating in or leading art, dance, drama, music, writing, or other creative activities	24	
	Using computers, electronics, or other types of technology	15	
	Studying, reading, doing research, or other ways of learning	7	
	Being in nature, caring for animals, or participating in outdoor recreation	6	
	Doing religious or spiritual activities, or learning about religions or spirituality	5	
	Being an entrepreneur, running a business, or inventing things	3	
	Doing construction, architecture, or other types of mechanics or engineering	3	
	Serving others, participating in politics, or working on social issues	3	
	Teaching, leading others, or public speaking	2	
	Other	5	
No			10
Not Sure			24

helping grow a spark is to have people and places that know, care about, and nurture that spark. Among 15-year olds who say they know their own spark, only 77% indicate that their parents help them cultivate their spark. Just over half of these teens who know their spark say their friends encourage and support them (58%), and only about half (52%) say they have grandparents and other family members who do.

More troubling, fewer than half of the youth with sparks say that people at school (48%), coaches, mentors, or other youth workers (43%), a religious leader (29%), or a neighbor (16%) helps them develop their spark. Thus, too many teens are left on their own to sort out how to cultivate their sparks. Just as troubling, too many people in teens' lives miss the opportunity to build a nurturing relationship with teens around the things that really matter to them. The striking similarity in these results across the two different samples, several years apart, and using somewhat differing question wording, suggests the finding of too-limited support being experienced by the nation's youth for spark development, especially from adults outside their families, is probably valid.

This early SI-Harris study also showed that of the 69% of young people who say they have a spark, only 5% have help to develop that spark from 5 to 6 of six life contexts (family, friends, school, neighborhood, youth organizations, and religious congregations). Most – 44% – get help only in 0–2 contexts, with another 20% getting help in 3–4 contexts. Redundancy of support across one's ecology is a strong developmental positive (see Benson 2006), and so the finding that few youth get spark support from the majority of their life contexts is especially disturbing. (If friends are omitted, so support is only about *adults* helping, then the figures stay about the same: 5% have adult help developing their spark in 4–5 contexts, 26% have it in 2–3 contexts, and most, 38%, have adult help in only 0–1 context).

Age Differences in Support Experienced for Developing Sparks

Moreover, the proportion of young people who said that few or no adults supported their pursuit of sparks increased steadily from 10–12-year olds (26%) to 13–15-year olds (40%) to 16–18-year olds (53%). These linear drop-offs in adult support were seen in every context (only support from friends showed no difference across age groups) and were especially notable for support from parents and neighbors. For example, 91% of 10–12-year olds get a lot of parental support for their sparks, versus 67% among 13–15-year olds, and just

47% among 16–18-year olds. Similarly, 56% of 10–12-year olds say neighbors give them very little or no support, compared with 66% among 13–15-year olds, and 79% among 16–18-year olds.

Developmentally, it would be expected that, as young people grow and their interests differentiate, their needs for specialized support for their talents and sparks would take them beyond the family and neighborhood where they live. But adult support also is less for older youth than younger youth in all the other contexts as well. Similarly, in the field test of the *Thriving Orientation Survey* (Benson and Scales 2009), it was also found that, for every one of about a dozen specific actions, adults could potentially take to support young people's spark identification and development, smaller percentages of high school students than middle school students say that adults do those things to help them, and middle school youth are more likely to say they have at least three adult role models who have similar interests as theirs. Although these studies were only cross-sectional, and did not follow these adolescents over time, the pattern is quite consistent with a vast amount of research, including a nationally representative study of US adults, showing that younger adolescents are more connected to nonfamily adults than are older adolescents in high school (see Scales et al. 2003).

The Connection Between Sparks, Thriving, and Positive Outcomes

Only a minority of American youth have sparks and the support to nurture them. This fact matters, because those young people do far better on almost every developmental indicator of well-being studied to date. For example, in the National Promises Study, it was found that the experience of the five promises was significantly associated with thriving. As Table 4 shows, *in*

Thriving and Sparks. Table 4 Thriving among 12–17-year olds by experience of individual promises (national promises study)

	Percentage thriving	Special talent/interest	Adult support
Caring adults			
0 indicators	23	36	35
1–2 indicators	31	44	61
3–4 indicators	53	57	86
Safe places and constuctive use of time			
0–1 indicator	10	16	37
2–4 indicators	39	48	75
5–6 indicators	61	65	89
Healthy start and healthy development			
0–2 indicators	37	45	55
3–5 indicators	47	53	79
6–8 indicators	51	56	86
Effective education			
0–2 indicators	31	41	58
3–6 indicators	40	48	75
7–9 indicators	60	64	89
Opportunities to make a difference			
0–1 indicator	36	46	66
2–3 indicators	42	47	76
4–5 indicators	53	59	84

every case, young people who meet an individual Promise by experiencing nearly all or all of the indicators of that Promise, report more thriving than other youth, sometimes dramatically so. For example, only 10% are thriving among those who experience none or only one of the indicators of Safe Places and Constructive Use of Time, but the percentage thriving leaps to 39% among those who partially meet that Promise (having 2–4 indicators) and takes another substantial jump to 61% who are thriving among those who meet the Safe Places Promise by experiencing 5–6 of the Safe Places indicators.

Similar results were observed from both of the more recent Teen Voice studies: 15-year olds who reported having at least one spark were consistently more likely to also report doing well on a variety of indicators of personal well-being and community involvement, from having a sense of purpose and valuing improving their academic skills, to helping people who are poor, and improving race relations. Table 5 shows the findings from Teen Voice 2009.

Moreover, and as would be expected given the positive association between the accumulation of developmental nutrients and desirable outcomes (Benson et al. 2006; Eccles and Gootman 2002), youth with *multiple* sparks are even more likely to achieve criterion levels of positive developmental outcomes, as shown in Table 6.

Compensatory Value of Sparks/ Thriving

Finally, there is evidence that differences in youth development outcomes by gender, race/ethnicity, and

Thriving and Sparks. Table 5 Why sparks matter: the relationship between sparks and outcomes, Teen voice 2009 study

Positive actions and commitments	If a teen has sparks (%)	If a teen does not have sparks (%)	Gap[a]
Teen reports			
Volunteering at least 1 h/week in a typical week	54	37	17
Sees self as			
Taking initiative to develop talents	80	47	33
Having had a sense of purpose for a long time	64	35	29
Asking adults for guidance to develop talents	63	39	24
Being adaptable and flexible	75	55	20
Giving up other things to focus on interests	44	24	20
Planning to do something that matters in other people's lives	77	58	19
Valuing improving academic skills	81	67	14
Places high value on			
Finding purpose and meaning in my life	87	67	20
Contributing to society	64	45	19
Helping people who are poor	58	42	16
Being a leader in my community	44	28	16
Serving my country	39	25	14
Improving race relations	49	35	14
Working to correct social inequalities	47	35	12
Having strong friendships	90	79	11
Having lots of money	58	58	0

[a]This gap is the point difference between those with and without sparks

Thriving and Sparks. Table 6 The relationship between having number of sparks and positive outcomes, Teen voice 2009 study

	Identifies no sparks (%)	Identifies one sparks (%)	Identifies two or more sparks (%)
Is adaptable and flexible.	45	60	72
Wants to master new skills.	24	44	63
Takes advantage of opportunities to nurture strengths and interests.	39	59	73
Values improving academic skills.	46	69	79
Wants to contribute to society.	32	47	62

socioeconomic status may be mitigated among those who have one or more sparks in their lives, the social support to develop those sparks, and a sense of being able to contribute to the social good, all elements of the broad theory of thriving. In the Teen Voice 2009 study, for example, it was found that, in examining outcomes by race/ethnicity, mother's education, and gender across the whole sample, there were significant differences by demographic groups in 25 of the 36 analyses. Among those experiencing high levels of positive relationships, voice, and sparks, however, 22 of the 25 differences (88%) became smaller or nonsignificant (Scales et al. 2010).

Specifically, eight of nine differences in outcomes by *race/ethnicity* became smaller or were eliminated among those with sparks and other strengths: GPA, attendance, mastery goals, sense of purpose, ethnic identity, prosocial values, civic engagement values, and worries. Differences on racial respect were maintained. All nine differences in outcomes by *gender* became smaller or were eliminated among strength-rich youth: GPA, leadership, mastery goals, sense of purpose, school engagement, ethnic identity, prosocial values, civic engagement values, and worries. Of seven differences in outcomes by *mother's education*, six became smaller or were eliminated among those with relationships, voice, and sparks: GPA, leadership, school engagement, ethnic identity, worries, and racial respect.

How Do Young People Themselves Describe Thriving?

The dataset developed with Just Kid, described earlier, provides a rich resource for examining how young people themselves describe thriving. Initially, the data were searched for uses of keywords that research staff generated. This strategy produced mixed results. A few of the words produced many "hits" in the datafile, but some were less effective. Thus, a more informal, manual content analysis was conducted to note patterns of words surfacing in the language of young people themselves, and generated a new list of keywords. *Bolded keywords occurred both in the a priori list and the list of terms used by youth themselves, with CAPS denoting words found at least 400 times in the 405 discussion transcripts:*

ADVICE
Care about
Commitment
Drive
Emotion
Encourage
FOCUS
GOAL
GOOD AT
Guidance
Obstacles
PASSION
Plan/path
Relationship
SACRIFICE
Spark
SUPPORT
Talent (in youth transcripts)
Weakness

The capitalized terms suggest that young people's most commonly expressed ideas about spark and thriving are quite similar to the researchers' terms, even if they do not use the words spark and thriving without

prompting. Sparks involve something they are *passionate* about, that helps *focus* them, and help them move toward achieving a *goal*, which reflects a sense of purpose, even if the word "purpose" is not used much. They want and seek out *support* to help them develop and get *good at* their spark, support that may include *advice* for nurturing the spark. And they often have to *sacrifice* in order to continue to be involved in and develop that spark.

The initial impressions from that moderated Internet bulletin board discussion conducted with 15–17-year olds give some further qualitative insights not apparent from the other more quantitative national samples (The authors are grateful to Ned Hickok, Michelle Poris, and Jessica Weinstein of Just Kid, Inc., for providing some of these impressions from the qualitative data.)

- Essentially, young people feel that anyone has the potential to have spark, but it is more of a question of "finding your spark" and pursuing it relentlessly and aggressively.
- There is a clear distinction between those with spark and those without, particularly in terms of the passion with which they talk about their spark as well as the great lengths they go to pursue their spark. Teens with spark have a passion and drive to succeed and want to make "it" (their spark) happen no matter what obstacle/barrier faces them.
- Encouragement from parents, as well as other adults and peers, appears to be a critical determining factor in whether young people choose to pursue a potential spark. However, the availability of guidance, quality resources (teachers, coaches, facilities, money, etc), and recognition for successes/skills are all factors that help a child's spark to really thrive.
- Young people with spark appear to have richer, more meaning-filled lives, since their focus on their spark keeps them out of trouble, and keeps them motivated to succeed in many areas of their life (academic, social, and personal).
- Adolescents in both supportive and unsupportive environments (as measured by their reports of getting overall support from parents, adults at school, religious organizations, neighborhoods, etc.) can have spark, but are likely to pursue it in different ways. Those in an unsupportive environment are more likely to look at their spark as a means to a long-term career, versus young people in a supportive environment, who look at their spark as a means of enjoying the here and now.

Perhaps the most important finding from these Internet-based bulletin boards is that the young people in this study seemed consistently to understand what spark is as well as when someone has spark in their life. Almost all participants basically expressed a desire to have sparks, since they understood the importance of having spark to their overall enjoyment of life. As a result, there were only a few who actually claimed not to have spark, quite a few more who were unsure whether they had spark or not, and many who initially said they had spark but did not *really* have it. This latter group may not be insignificant in size. In the brief Harris online survey Search Institute conducted in 2005, 13% of the youth who said they had a spark could not actually *describe w*hat that spark was. Some of these youth may simply not have the linguistic skills to describe their passions. Many may have responded optimistically that they had such interests, but then because they really do not, could not give any details about their supposed sparks.

Young people with clear spark, on the other hand, use rich terms to describe how they feel about their spark: e.g., relish, love, reason to smile, fires me up, etc. The language used in their online responses is very close to what one would expect from someone describing a love interest and/or an important relationship. Young people with spark appear to be more emotionally attached to the subject of their interest and see their spark as an evolving/growing relationship that they have. As a result, these young people feel spark is not something that you go out and get, but something you have to find and/or recognize when it finds you. Since spark is an emotionally driven love or passion, young people recognize that finding one's spark is a process. This is described as growth from the inside-out: Spark comes from inside of a person. And when it is expressed, it gives one joy and energy. It is the very essence, the thing about one that is good, beautiful, and useful to the world.

Conclusion

This essay has described the intellectual journey that has taken Search Institute researchers and colleagues, over the last two decades, from looking at thriving as a collection of point-in-time status indicators, to thriving as a dynamic person–context process unfolding over time, with one's sparks at the red-hot center,

fueling one's metaphorical life fire. It has been noted that sparks are "akin to the human spirit" (Benson 2008, p. 17), the breath of life put into action. This analogy explicitly connects thriving and youth spiritual development in a rhetorical way. This intellectual journey around sparks and thriving over the next years will certainly include a more conceptually rigorous and empirically oriented exploration of the common and unique elements of thriving-sparks, spiritual development, and developmental assets.

With a series of both quantitative and qualitative studies, both nationally representative and more purposive, a foundational understanding has been established that, when youth have sparks and a thriving orientation, numerous developmental and social benefits are experienced, both by young people and by the contexts they inhabit. Unfortunately, it also has been shown that only a minority of young people in the USA experience both sparks and high levels of support to develop those deep interests, such that only a minority can truly be said to be thriving.

Major new efforts are now underway to change this state of affairs, with the launching of a series of "sparks networks" across the USA that use the identification and promotion of sparks and thriving as the energy for building authentic and sustained adult–youth relationships, in schools, religious congregations, youth organizations, and neighborhoods. Since its emergence more than 20 years ago, the developmental assets framework has been the stimulus for community-wide mobilizations for positive youth development in thousands of communities in the USA and Canada, and increasingly, around the world, and has become one of the pillars of positive youth development theory and practice, helping to change the way adults view and relate with youth. Twenty years from now, perhaps it will be said that the framework of thriving and sparks had the same pervasive research and applied impact.

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Cross-References

► Developmental Assets

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Tic, Tourettes, and Related Disorders

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Overview

Tic disorders, including Tourette Syndrome, are characterized by the presence of motor and/or vocal tics. Habit disorders, otherwise known as body-focused repetitive behaviors, most commonly include hair pulling (Trichotillomania), skin picking, and nail biting. Tics are more colloquially referred to as "twitches" or "spasms" and repetitive behaviors may be more commonly known as "nervous habits" or "fidgeting". Tic disorders and habit disorders are both fairly prevalent among adolescents and can be associated with distress and impairment. This essay provides a description of these disorders, including their diagnosis and assessment. The populations generally studied in the tic and habit disorder literature are described, and current gaps in understanding of these disorders are highlighted.

Description of Disorders

Tic Disorders

Tics are sudden, rapid, recurrent vocalizations or motor movements (American Psychiatric Association [APA] 2000). Tics can range from simple behaviors (e.g., forceful eye blinks or sniffing) to highly conspicuous and complex vocal and motor patterns (e.g., complete words or sequences of movements). Recent epidemiological studies suggest that tics occur in 17–21% of youth and are more common in males than in females (Kurlan et al. 2002). The international prevalence of Tourette Syndrome (TS), considered the most severe tic disorder, is estimated to be approximately 1% (Robertson et al. 2009), and the Centers for Disease Control ([CDC] 2009) estimates that 3.0 per 1,000 children in the USA have been diagnosed with TS.

In TS, tic onset tends to occur between the ages of 4–6 years. Symptom severity generally peaks between the ages of 10–12 and is followed by a reduction in symptoms into mid-adolescence and adulthood for two-third of those affected (Bloch and Leckman 2009). The course of TS is characterized by changes in the frequency, severity, number, complexity, and anatomical location of tics. The first tics to appear are typically motor tics of the eyes, face, and head, followed by the emergence of tics in a head-down direction. The onset of vocal tics usually occurs several years after the onset of motor tics. In general, simple tics, such as brief movements or short sounds (e.g., sniffing, syllables), precede the onset of complex tics, such as meaningful gestures or phrases. Tics tend to occur in "bouts" and fluctuate in a waxing and waning pattern across time.

These variations in tic expression are thought to be influenced by both biological factors, such as abnormal activity in the basal ganglia (Mink 2006), and by contextual factors, such as events that take place before and after tic occurrences (Conelea and Woods 2008).

Beginning around the age of 10 years, many youth with TS report that their tics are preceded by aversive or uncomfortable somatic sensations (e.g., scratchy feeling, pressure, tension, tingle) that have been labeled the "premonitory urge" (Woods et al. 2005). Following tic occurrence, the premonitory urge is often attenuated, leading researchers to postulate that some tics may be strengthened and maintained by the removal or reduction of the urge (e.g., negative reinforcement; Himle et al. 2007). Although adolescents with TS are more likely to be aware of premonitory urges than younger children, it is important to note that some adolescents may not experience any urges or may only experience urges for some of their tics.

Co-occurring psychiatric conditions occur in the majority of youth with TS, the most prevalent of which are Obsessive Compulsive Disorder (OCD), Attention Deficit Hyperactivity Disorder (ADHD), major depression, and other anxiety disorders (Kurlan et al. 2002). Although some research suggests that youth with co-occurring conditions experience greater functional impairment than those with TS alone (Carter et al. 2000), tic-related impairments have been reported and include social difficulties, peer victimization, educational problems, physical injury arising from tic performance, and diminished family functioning (Storch et al. 2007a).

Research on the etiology of TS suggests an underlying genetic basis, which is supported by data showing higher concordance rates of TS in monozygotic twins than in dyzygotic twins (Pauls et al. 1991). Although attempts have been made to identify specific chromosomal genes associated with TS, the current consensus is that TS is likely polygenetic (Swain et al. 2007). Neurobiological investigations have implicated neural circuits linking the cerebral cortex, basal ganglia, and thalamus in the pathology of TS as well as in other repetitive behavior disorders (Butler et al. 2006). A definitive neurochemical abnormality in TS has not been identified, although the preponderance of evidence supports the role of dopamine (Mink 2006). For example, increased dopamine activity in the basal ganglia has been observed in those with TS compared to controls, and blockade of dopamine receptors by neuroleptics has been shown to reduce tic frequencies (Swain et al. 2007).

Although tics have a neurological basis, research suggests that they can come to be systematically influenced and partially maintained by contextual events over time (Conelea and Woods 2008). For example, several contextual factors have been associated with tic exacerbations (e.g., stressful, frustrating, or anxiety-provoking events; social events; fatigue; and starting school in the fall) and with tic reductions (e.g., leisure activities, social interactions with familiar people, situations in which the individual is a passive participant). The influence of particular contextual variables on tics can vary by individual as well as across the course of an individual's tic disorder.

Body-Focused Repetitive Behaviors

Body-focused repetitive behaviors (BFRBs), sometime referred to as habit disorders, include behaviors such as hair pulling, skin picking, and nail biting, which may result in noticeable hair loss or tissue damage and may cause significant distress. With the exception of hair pulling, which is classified as trichotillomania (TTM), there are currently no formal diagnostic categories for BFRBs so that they are often diagnosed as a stereotypic movement disorder (SMD). Despite the lack of a formal diagnostic label, BFRBs are fairly prevalent, especially among adolescents, and can result in considerable physical and psychological impairment. For instance, the effects of nail biting include skin infections, scarring, nail loss, and even dental problems (Leonard et al. 1991). Severe cases of skin picking may result in significant functional impairment, distress, and even disfigurement (Flessner and Woods 2006). Approximately 5–18% of individuals with hair pulling or TTM will ingest the removed hair (Christenson and Mansueto 1999), which occasionally results in the formation of trichobezoars – conglomerates of hair and food that form in the gastrointestinal tract. These trichobezoars may result in a variety of physical problems including weight loss, anemia, pain, and vomiting; severe cases may require surgical removal (Baskonus et al. 2002). Other medical complications of TTM include scalp irritation, follicle damage, atypical hair regrowth, and carpal tunnel syndrome (Keuthen et al. 2001).

While physical consequences are often the most apparent indicator of BFRBs, these disorders are also associated with significant psychological symptoms. Individuals with BFRBs report elevated levels of depression, anxiety, and stress, low self-esteem, shame and impairment in social, home, and occupational functioning (Flessner and Woods 2006; Stemberger et al. 2000). Furthermore, those with pathological BFRBs commonly meet diagnostic criteria for additional psychiatric disorders such as depression, anxiety, substance use disorders, eating disorders, body-dysmorphic disorder, and personality disorders (Christenson 1995; Wilhelm et al. 1999).

Measures and Measurement Issues

A comprehensive clinical assessment of tic and habit disorders will include: (a) diagnosis and differential diagnosis, (b) assessment of symptom severity and topography, (c) ascertainment of maintaining factors, and (d) description of the functional impact of the tic/habit disorder.

Tic Disorders

Diagnosis and differential diagnosis. Diagnostic categories for tic disorders are differentiated from one another based on the duration and variety of an individual's tics and include Transient Tic Disorder (TTD), Chronic Motor or Vocal Tic Disorders (CTDs), and Tourette's Syndrome (TS). TS is characterized by multiple motor and one or more vocal tics that have been present (not necessarily concurrently) for at least 1 year without a tic-free period of more than 3 consecutive months. CTDs are characterized by the presence of either motor or vocal tics (but not both) for at least 1 year and TTD by the presence of motor and/or vocal tics for at least 1 month but less than 12 months. To meet diagnostic criteria for a tic disorder, an individual's tics must be present before the age of 18, and the tics must not be better accounted for by another medical condition or by the effects of a substance (APA 2000). In cases where tics are present but do not meet criteria for one of the aforementioned tic disorders, a diagnosis of Tic Disorder Not Otherwise Specified (TDNOS) may be conferred.

In conducting a differential diagnosis, tics must be distinguished from other conditions with similar symptom presentation. Referral to a neurologist or psychiatrist for a medical evaluation is recommended given that tic-like behaviors may be the result of other medical conditions, such as chorea, dystonia, spasms, or allergies (APA 2000). Tics may also be hard to distinguish from other psychiatric conditions, especially stereotypic movement disorder and obsessive-compulsive disorder (OCD). Generally, stereotypic movement disorder should be considered when the repetitive behavior is a single stereotypic movement that does not wax and wane over time or change topographically and when the patient has a single complex movement without a history of simple tics (Woods et al. 2006a). Compulsions associated with OCD can resemble complex tics and can also be difficult to differentiate, especially in an adolescent with co-occurring OCD. Assessment of the client's internal experiences immediately prior to the behavior can help with differential diagnosis. A repetitive behavior is usually a tic when it is preceded by a vague urge or physical discomfort rather than by physical anxiety or a specific obsession (e.g., a feared consequence for not performing the behavior; Miguel et al. 1995).

Symptom severity and topography. An assessment of tic symptom severity should be conducted using interviews, observations, and standardized measures. During the clinical interview, ideally conducted with the adolescent and his/her parents or caregivers, the clinician should inquire about the history of tics (e.g., age of onset, course, family history) and gather detailed information on the topography, frequency, intensity, complexity, functional interference, controllability, and associated premonitory urge phenomena for each of the client's current tics. The Yale Global Tic Severity Scale (Leckman et al. 1989), a semistructured clinical interview, can facilitate this process and has the added benefit of providing a quantification of severity that can be used to assess progress throughout the course of treatment. Given that tics may appear atypical in the clinic (e.g., more or less frequent than usual, Piacentini et al. 2006), covert observation of the client in the clinic or videotapes of the client at home may also help the clinician rate tic severity and/or identify tics that the client may not report because of low awareness. The clinician should also conduct a functional assessment by interviewing the adolescent and the parent/guardian regarding environmental antecedents and consequences (e.g., parental reaction to tics and stressful and anxiety-provoking situations) that may play a role in tic maintenance. Self-report instruments can

also be incorporated in an initial assessment and throughout treatment (e.g., The Yale Tourette Syndrome Symptom List-Revised; Cohen et al. 1980; The Parent Tic Questionnaire; Chang et al. 2008; The Premonitory Urge for Tics Scale; Woods et al. 2005).

Body-Focused Repetitive Behaviors

The DSM-IV-TR does not include diagnoses for specific BFRBs, with the exception of hair pulling, which may be diagnosed as trichotillomania (TTM). Because there is no formal diagnostic categories for BFRBs (other than TTM), they are frequently diagnosed as a stereotypic movement disorder (SMD). The essential features of an SMD are a repetitive, seemingly driven, non-functional motor behavior that interferes with functioning or causes physical injury requiring treatment (APA 2000). Other medical or psychiatric conditions that could potentially be responsible for the associated behavior or observed tissue damage must be ruled out as well.

One of the first steps in the treatment of BFRBs is to assess symptom severity and the topography of the BFRB. Unfortunately, there are currently few standard measures assessing symptom severity in BFRBS that have demonstrated acceptable psychometric properties, particularly in children and adolescents. One exception is a measure of hair pulling called the Trichotillomania Scale for Children (TSC), which includes a child- and parent-report version (Tolin et al. 2008). The lack of adequate instrumentation for the assessment of BFRBs makes it critical that the treating clinician gather detailed information about the symptomatology and topography of the behavior. For instance, it is important that the patient describe the bodily locations where the habit occurs as well as ways in which the habit is performed (e.g., the use of fingernails to pick skin or tweezers to pull hair). Detailed information should be gathered on the environmental situations and internal events (e.g., related cognitions or negative affect) that precede the target behavior as well as its consequences (e.g., reduction of negative affect or pleasurable bodily stimulation).

Evidence suggests that BFRBs are maintained through environmental antecedents and consequences. A behavioral model of TTM was presented by Mansueto et al. (1997) in which conditioned stimuli associated with the urge to pull, discriminative stimuli for pulling itself, various behaviors associated with pulling and reinforcing consequences all play a role in the maintenance of the disorder. The reinforcing effects of BFRBs and their role in the persistence of the behavior are perhaps the most studied aspects within the proposed model. Both self-report and experimental research indicate that performance of the behavior associated with the BFRB often results in decreased tension, anxiety, and boredom (Diefenbach et al. 2002; Diefenbach et al. 2008; Wilhelm et al. 1999). While this evidence suggests that BFRBs are at least partially maintained through negative reinforcement, other research indicates that they may also be positively reinforcing. Individuals with BFRBs frequently report increased pleasure and satisfaction while engaging in a body-focused behavior (Diefenbach et al. 2008), and subsequent behaviors such as manipulating pulled hair with one's hands or mouth have also been reported as being positively reinforcing (Mansueto et al. 1997; Rapp et al. 1998).

In the treatment of BFRBs, the functional impact of these behaviors should also be addressed. It is important that the clinician inquire about the areas of life affected by the behavior (e.g. impairment in home and school responsibilities, peer relationships, and general well-being and quality of life). In addition, it is essential to assess for possible comorbid conditions, since, like tic disorders, symptoms of other disorders may be more impairing than the BFRB (Diefenbach et al. 2005; Keuthen et al. 2004).

Populations Generally Studied and Sources of Data

Tic Disorders

Given that TS is a childhood onset disorder, the bulk of the literature on TS is based on samples of children and adolescents. Research focused specifically on adolescents has been limited (e.g., Lyon and Coffey 2009). Therefore, aside from the finding that tic severity tends to diminish during adolescence (Bloch and Leckman 2009), it is unclear if TS has any unique features at this stage of development.

Although research on TS phenomenology and treatment has tended to separate youth from adults, most existing data on the functional impact of TS are based on large samples combining adult and youth responses (e.g., Bornstein et al. 1990). Furthermore, little research has assessed TS-related impairment

from the perspective of the youth, instead relying only on parental or clinician report (e.g., Freeman et al. 2000). Some research contrasting parent and youth report found disagreement about the impact of TS on quality of life (Storch et al. 2007b), suggesting that assessment of both perspectives may be necessary for accurate case conceptualization. This may be especially true in the treatment of adolescents, who may be less likely to spend time with parents (making it difficult for parents to accurately rate tic severity) or less likely to talk to their parents about tic-related difficulties, such as teasing or worries regarding dating.

Body-Focused Repetitive Behaviors

Although research on BFRBs is scarce, they appear to be fairly common in adolescents. Many studies used samples of college student populations which provide a relative estimate for the prevalence of BFRBs in adolescents and young adults. For example, Woods et al. (1996) surveyed a college student population and found that 15% reported hair manipulation, 3% reported hair pulling, and 10% reported nail biting. Pathological skin picking has been reported in 4% of college students (Bohne et al. 2002; Keuthen et al. 2000). Retrospective reports of adults with TTM indicate that the average age of onset of the disorder to be in early adolescence around ages 12 or 13 (Cohen et al. 1995). The incidence of nail biting appears to be most prevalent in adolescence peaking at as many as 45% of individuals during this time (Odenrick and Brattstrom 1985). This evidence indicates that BFRBs are particularly prominent in adolescents and that future research needs to address this specific population.

Controversies and Gaps in Knowledge

Tic Disorders

Despite the fact that TS research has increased exponentially in recent years, gaps remain in the knowledge of this disorder. Further research is needed to precisely identify genetic, neurobiological, neurochemical, and environmental mechanisms involved in TS etiology; the mechanisms responsible for tic fluctuations; and the variables that influence the course of the disorder (e.g., why some cases remit while others continue or worsen in adulthood). A comprehensive model of TS will likely necessitate the convergence of data across multiple research disciplines.

Treatment options for those with TS have improved, but it is important to note that there is no cure for tics. Rather, treatment may help reduce tic severity and tic-related distress. Treatment options include pharmacotherapy or psychosocial treatments. Several psychopharmacological agents have been shown to reduce tic severity significantly better than placebo in randomized control trials (see Gilbert 2006). Dopamine receptor–blocking agents, specifically haloperidol, pimozide, and risperidone, have the greatest empirical support (e.g., effective in two or more placebo-controlled trials) and tend to produce the greatest reductions in tics. However, these drugs are not recommended as a first-line treatment due to concerns about side effects (e.g., weight gain, sedation, increased anxiety). Instead, current consensus is that low doses of α-adrenergic drugs, such as clonidine and guanfacine, be prescribed first (Gilbert). Although these and other agents have demonstrated some benefit, pharmacological research in TS remains limited by the fact that few medications used to treat TS have been tested in multiple randomized control trials; most clinical trials have been small, single site, and investigator initiated; most of the agents studied have showed small effect sizes; and little rigorous evidence exists to guide treatment decisions between agents (Gilbert and Buncher 2005). Further research is needed to address these limitations.

The psychosocial treatment approach for TS with the most empirical support is Habit Reversal Therapy, a multicomponent behavioral treatment that includes (a) psychoeducation, (b) function-based interventions to reduce the likelihood of tic exacerbations, (c) awareness training to enhance awareness of tics and associated warning signs, (d) competing response training to institute the use of behaviors that are incompatible with tics, and (e) social support to increase motivation and compliance (Azrin and Nunn 1973; Woods et al. 2008). In a recent review of empirical psychotherapy outcome research on TS, Cook and Blacher (2007) concluded that HRT should be considered a "well-established treatment" according to the criteria established by the American Psychological Association Task Force for Promotion and Dissemination of Psychological Procedures (Chambless et al. 1998). Cook and Blacher also concluded that Exposure and Response Prevention (ERP) meets criteria as a "probably efficacious" intervention that warrants further investigation. In ERP, the client is exposed to the premonitory urge

and must prevent the occurrence of tics. HRT and ERP are thought to have a similar mechanism of change: habituation to the premonitory urge. As mentioned previously, tics appear to be partially maintained by negative reinforcement (removal or reduction of the urge contingent upon tic performance; Himle et al. 2007). Prevention of tics through HRT or ERP strategies is thought to enable habituation to the urge, thus reducing the intensity and frequency of urges and tics.

Limitations regarding psychosocial treatment for TS include a paucity of treatment providers who are well-trained in behavior therapy for tics and greater treatment time and effort as compared to pharmacotherapy. Research questions yet to be addressed concern treatment dissemination, the effectiveness of these treatments outside the context of research trials, and identification of moderators that predict who may benefit the most from behavior therapy.

Additional gaps in the knowledge of TS treatment include questions about the comparative or combined efficacy of medication and behavior therapy and how best to treat those with co-occurring conditions. Although some research has examined pharmacotherapy for those with tics and ADHD (Tourette Syndrome Study Group 2002), most TS treatment research has focused on treating tics only, leaving practitioners with little data upon which to base treatment decisions in more complex cases.

Body-Focused Repetitive Behaviors

To date, there are several gaps in knowledge and limitations to understanding and treating BFRBs. Little is known about these conditions, particularly in adolescent populations, despite appearing to be quite prevalent among this age group. Part of the reason for this may be the absence of formal diagnostic criteria and categorization for these behaviors, with the exception of TTM. Until BFRBs are properly defined and diagnosed, there will be significant barriers to the research and development of treatment modalities. Despite these limitations, there are some promising approaches to treatment. Of these, HRT is the best studied with the most evidence for the treatment BFRBs. In HRT for BFRBs, patients are taught to recognize the behavior and its warning signs as they occur so that they can perform a competing response – a behavior or action in place of the problem behavior (e.g., making a fist upon the urge to hair pull or skin pick). Other important components of HRT include social support, psychoeducation, and function-based interventions. Early studies compared HRT to negative practice for the treatment of TTM (Azrin et al. 1980a), nail biting (Azrin et al. 1980b), and other oral habits (e.g., lip biting and chewing; Azrin et al. 1982). In each study, HRT outperformed negative practice on the number of self-reported episodes of the BFRB. More recently, Twohig et al. (2003) conducted a trial comparing HRT to a placebo control for the treatment of nail biting and found significantly greater nail length at post treatment in the HRT condition. Another trial for skin picking compared HRT to wait-list control and found significant reductions in self-reported picking episodes and independent ratings of physical damage in the HRT condition, which were maintained at follow-up (Teng et al. 2006). A randomized control trial conducted by van Minnen et al. (2003) compared behavior therapy, fluoxetine, and wait-list control for the treatment of TTM. Significantly greater reductions in symptom severity were reported in the behavior therapy group compared to the fluoxetine and the wait-list control groups.

While HRT has remained the standard treatment of BFRBs, there has been recent evidence supporting the use of a combination of Acceptance and Commitment Therapy (ACT; Hayes et al. 1999) and HRT for BFRBs (Woods and Twohig 2008). ACT seeks to increase one's ability to accept rather than avoid or deliberately alter aversive internal states that may precede the behavior. Because pulling is often performed to manage negative affect or reduce an urge (Christenson et al. 1993), incorporating techniques that promote acceptance of these experiences may enhance HRT's efficacy and effectiveness. ACT with HRT has already demonstrated promise for TTM (Woods et al. 2006b), and evidence suggests it may be promising for the treatment of other BFRBs as well (Twohig et al. 2006). As with all treatment of BFRBs, further research is needed particularly for pediatric and adolescent populations.

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Tobacco Use

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Overview

This essay provides an introduction to tobacco use among adolescents. It begins with a definition of

adolescent smoking and a review of the focus of research on the issue of tobacco use. Tobacco smoking is the practice where tobacco is burned and the vapors either tasted or inhaled. Smoking is the most common method of consuming tobacco, and tobacco is the most common substance smoked. The tobacco is often mixed with other additives and then pyrolyzed. The resulting vapors are then inhaled and the active substances absorbed through the alveoli in the lungs.

The two broad categories of tobacco products are identified and their respective types discussed with the estimated proportion of US children using tobacco products identified. The link between tobacco use and cancer, especially lung cancer, and other diseases are identified and discussed. Evidence shows that many smokers begin during adolescence or early adulthood and continue through adulthood. During the early stages, smoking provides pleasurable sensations and thus serves as a source of positive reinforcement.

The factors relevant to adolescent tobacco use and risk factors are presented and discussed. The essay concludes with a discussion of the theories that have been proposed as explanations of adolescent substance use.

Introduction

Adolescence is a period of developmental adjustments, which entails many physiological and psychological changes. Connected with these changes are the social and cultural expectations that are associated with the transition from childhood to adulthood. The adolescent must therefore develop ways of coping with such demands. Two methods of coping have been identified – those directed at resolving stressful demands and those directed toward managing the uncomfortable feelings aroused by such demands. One method frequently used by adolescents to cope or adapt to the new demands of this period is smoking, and/or the use of other tobacco products. An overwhelming body of studies has established cigarette smoking as the single largest preventable cause of premature death and disability in the United States. In addition to lung cancer, tobacco use is now known to be causally related to a variety of other cancers, to cardiovascular disease, and is found to be the major cause of chronic obstructive lung disease. More than 4,000 toxins or carcinogenic chemicals have been found in tobacco smoke.

Adolescent Smoking

Adolescent smoking is defined as a dynamic process, with many experimenting but only a few going on to regular use. Recently, many researchers have dedicated time to the study of predictors and concomitants of adolescent tobacco use. Despite the widespread knowledge and acceptance that tobacco smoke is harmful to one's health, many adults, and young adults, continue to smoke regularly. Research on the adult smoking population found that many adults began smoking in their adolescence years, and many became daily smokers before the age of 18 years. Analysis of the factors associated with the onset of tobacco use has emerged as a major focus of research. Another reason for this increased focus is the fact that while adult smoking showed a decline from the mid-1960s through to the 1980s, and leveled off in the 1990s, tobacco use among adolescents increased in the 1990s after showing a decrease in the 1970s and 1980s. In comparing adolescent males and females smoking habits, the evidence indicates that while the percentage of boys smoking remained stable or fallen only slightly, the percentage of girls smoking has actually increased.

The adolescent smoking trends have largely continued even with efforts to reduce access to cigarettes, to diminish the effects of parent and sibling smoking and peer pressure, and to limit the marketing of tobacco (Center for Disease Control and Prevention [CDC] 1994, 1996). The increased use in the 1990s coincided with exorbitant expenditures on promotion and advertising of tobacco brands and an overall increase in advertisements in the print and visual media for tobacco products. Nevertheless, these reasons for the reversed trend seem incomplete. In particular, it seems reasonable to assume that there are underlying issues that lead to adolescent smoking beyond opportunity and other sociological influences.

In 2008, estimates of tobacco use in the United States revealed that in any 1 day, approximately 3,900 adolescents (between 12 and 17 years) smoked their first cigarette, and about 1,000 adolescents will become daily cigarette smokers (Substance Abuse and Mental Health Services Administration [SAMHSA] 2009). In 2006, approximately 1,245,240 adolescents aged 12–17 years, accounting for one sixth of the adolescents' population smoked cigarettes and 586,454 used marijuana. On an average day in 2006, 4,082 adolescents initiated cigarette use and 3,577 start using marijuana

(SAMHSA 2007). Worldwide, between 80,000 and 100,000 adolescents start smoking everyday – roughly half of whom live in Asia. Research evidence shows that around 50% of those who start smoking in their adolescent years will continue the habit for 15–20 years.

Types of Tobacco Products

There are two broad categories of tobacco products: Smoking Tobacco and Smokeless Tobacco. Tobacco smoking is the act of burning cured or dried leaves of the tobacco plant and inhaling the vapor (smoke). Burning the tobacco leaves releases biochemically active compounds such as nicotine and tobacco-specific nitrosamines (TSNAs) that are absorbed through the lungs. Examples of smoking tobacco are Roll-Your-Own (RYO), Manufactured Cigarettes, Cigars, Bidis, Kreteks, Pipes, Water Pipes, and Sticks. Smokeless tobacco is usually consumed orally or nasally without burning or combustion. Two categories of smokeless tobacco are identified: Snuff (moist and dry), and chewing tobacco.

Products for smoking include cigarettes, rolled preparations, and pipes. Smokeless tobaccos include chewing tobacco, sucking tobacco, and products for oral application. The type of product influences the convenience of use, how it may be used, the effects on the user, the way it burns and emits sidestream smoke, and rate of burn. Other considerations are the size of product, the amount of tobacco per unit, presence of filter, casing, and manner of manufacture (factory or hand produced). The level of nicotine, configuration of additives, and whether or not it is mentholated will affect strength, smoothness, taste, inhalability, consumer preference and sidestream smoke (Cancer Foundation 2009; CDC Fact Sheet 2009).

Smoking Tobacco

Cigarettes

According to the CDC (2009) Smoking and Tobacco Use Fact Sheet, in the United States, 20% of high school students (21% males and 19% females) are cigarette users. In 2006, cigarette smokers in middle school were estimated as 6% for males and 6% for females. Data revealed that adolescent cigarette smokers smoked approximately five cigarettes each time they smoked (SAMHSA 2007).

The most common form of smoking tobacco is the machine-manufactured cigarettes, accounting for the largest share of manufactured tobacco products in the world and 96% of total sales. Cigarettes consist of shredded or reconstituted tobacco, processed with hundreds of chemicals, and rolled into a paper-wrapped cylinder. They are then tipped with a cellulose acetate filter at one end, through which the smoker inhales when the cigarette is lit at the other end. The invention of the cigarette-rolling machine in 1881 started the era of pocket-sized packets of cigarettes, giving way to the bulky water pipes and hand-rolled cigarettes. Cigarettes were now convenient and portable and could be used while driving a motor vehicle, taking a walk, or while at work. In most regions, it has replaced other forms of tobacco use due to worldwide marketing campaigns, highly engineered design, and its availability and convenience to the consumer.

Roll your own (RYO) cigarettes are hand filled by the smoker from fine-cut, loose tobacco rolled in cigarette paper. With RYO cigarettes, smokers are exposed to high concentrations of tobacco particulates such as tar, nicotine, and tobacco-specific nitrosamines (TSNAs). About 15 billion cigarettes are sold daily – or 10 million every minute.

Cigarettes are remarkably effective nicotine delivery devices. Cigarette smoking causes more than one in five American deaths. Diseases associated with cigarette smoking include lung diseases such as chronic bronchitis (a common ailment for smokers), a disease in which the airways produce excess mucus, forcing the smoker to cough frequently. Cigarette smoking is also the major cause of emphysema, a disease that slowly destroys a person's ability to breathe. Smoking cigarettes also increases the risk of heart disease with almost 180,000 Americans dying each year from cardiovascular disease. Smoking, high blood cholesterol, high blood pressure, and lack of exercise are all risk factors for heart disease, but smoking alone doubles the risk of heart disease. In addition, according to the Oral Cancer Foundation (OCF) cigarette smoking is responsible for 87% of lung cancer, and can cause cancer of the mouth, pharynx, larynx, esophagus, pancreas, uterine cervix, kidney, and bladder (OCF 2009).

Cigars

Cigars are of tubular construction made of air-cured and fermented tobaccos wrapped in tobacco leaf. They

may be hand or machine made, and account for a small percentage of the worldwide smoking market. The long aging and fermentation process produces high concentrations of carcinogenic compounds that are released on combustion. The toxins and irritants in cigars are of a higher concentration than those in cigarettes, therefore making cigars a major source of secondhand smoke. The nonporous cigar wrapper makes burning less complete than cigarettes. Also, the larger size of most cigars (therefore more tobacco), and longer smoking time, will cause a higher exposure to secondhand smoke. Nonsmokers are then exposed to many toxic compounds, including carbon monoxide, ammonia, hydrocarbons, cadmium, and other substances. Evidence shows that cigar smoke contains over 4,000 of these chemicals – 200 are poisons, 43 of which are known to cause cancer.

According to the CDC (2008), in 2007, many children and adolescents were cigar users. Of the students enrolled in high school, 13% were cigar users; with males users recorded at 19%, more than doubling the number of female users (8%). It is also estimated that 5% of middle school students used cigars. As with the high school users, more male middle school students (7%) used cigars than females (4%).

Like cigarette smoking, cigar smoking doubles the risk of laryngeal, oral, and esophageal cancers. Evidence shows that smoking three to four cigars per day doubles the risk for oral cancers to more than eight times, and esophageal cancer to more than four times the risk for someone who has never smoked.

Bidis

In the late 1990s, another tobacco product concerned the public health community – adolescent experimentation with bidis. In 2006, data for high school students revealed that approximately 3% of students were users of bidi. Male high school users were recorded at 3.3%, while 2.4% were females. Approximately 2% of middle school students used bidis, with male users accounting for 1.9% and 1.5% for females (CDC Fact Sheet 2009).

Bidis are filter-less tobacco cigarettes from India. Bidis consist of a small amount of sun-dried flaked tobacco hand-wrapped in dried temburni or tendu leaf and secured with a colorful string at one or both ends. They are sold in a variety of flavors such as mango, cloves, vanilla, cinnamon, strawberry, and cherry. Their enticing flavors, aroma, similarity in appearance to a marijuana joint and low cost have made bidis appealing to youth. Bidis also provide a quick "rush" when smoked. Health authorities have dubbed bidis "cigarettes with training wheels."

Despite their small size, bidis are believed to be more dangerous than cigarettes, as their smoke contain about five times more tar than regular filtered cigarettes, and over three times the amount of nicotine and carbon monoxide. Given that they do not burn as easily as regular cigarettes, because of the low combustibility of the tendu leaf wrapper, bidi smokers have to pull harder and more frequently on the bidi in order to keep it lit; sometimes as much as 28 puffs, compared to about nine puffs for a regular cigarette (see Delnevo et al. 2004). Users therefore breathe in greater quantities of tar and other toxins than cigarette smokers.

Bidis are commonly incorrectly assumed to be healthy because of their unprocessed appearance. Evidence shows that while very little research on the health effects of bidis has been conducted in the United States research from other countries revealed that bidis were more addictive than regular cigarettes given their higher nicotine levels. Bidis are therefore carcinogenic and mutagenic. Users of bidis are at risk for various cancers, such as liver, lung, stomach, and throat. Bidi users are also three time more likely to suffer from coronary heart disease and acute myocardial infarction (heart attack) than nonusers. Bidi smoking is also associated with emphysema and users have a fourfold increased risk for chronic bronchitis. Like all tobacco products, bidi users are at risk for cancers of the oral cavity, lung, larynx, pharynx, stomach, liver, and esophagus. Bidis are found throughout South Asia and are the most heavily consumed smoked tobacco product in India (CDC 1999; CDC Fact Sheet 2009).

Kreteks

Kreteks, sometimes called clove cigarettes, are imported from Indonesia and typically contain a mixture of tobacco, cloves, and other additives. They are available as machine produced and hand-rolled smoking products. Kreteks may contain a wide range of exotic flavoring and eugenol (sometimes called clove oil), which has an anesthetic effect, allowing for deeper and more harmful smoke inhalation. Research done in Indonesia indicates that kreteks smokers have 13–20 times the risk for abnormal lung function (lung

damage can exhibit a range of characteristics such as airflow obstruction or decreased oxygen absorption, fluid in the lungs, leakage from capillaries, and inflammation), compared to nonusers, and can be especially dangerous among susceptible individuals with asthma or respiratory infections. Smoking clove cigarettes can lead to severe health consequences including, bronchitis, difficulty breathing, hemoptysis (i.e., coughing up blood), pneumonia, and respiratory infection.

In the United States in 2006, estimate for high school users of kreteks was 2.8% with more male users (3.6%) than female users (2.0%). Data for middle school students revealed that 1.4% were kreteks users, again with more male users (1.7%) than females (1.0%). Bidis and kreteks have higher concentrations of nicotine, tar, and carbon monoxide than regular cigarettes sold in the United States, but neither bidis nor kreteks are safe alternatives to regular cigarettes (CDC Fact Sheet 2009; World Health Organization [WHO] 2006).

Pipe/Water Pipes

Types of pipe include portable hand-held pipes, (hookli in Western-European and the chillum in India), and elaborate pipes with water chambers (e.g., hookah, nargilah) and long stems in the form of hoses. Pipes are made of briar, slate, clay, or other substances. Prepared tobacco is placed in the bowl, lit, and then the user inhales the smoke through the stem. Portable pipes exist in different forms throughout the world, while water pipes are found mostly in South Asia and the Middle East.

Water pipes, also known as shisha hookah, narghile, or hubble-bubble, are used to smoke specially made tobacco. These pipes are operated by water filtration and indirect heat. Hookah tobacco is available in a variety of flavors, such as apple, mint, cherry, chocolate, coconut, licorice, cappuccino, and watermelon. The tobacco is burned in a smoking bowl covered with foil and coal. The smoke is cooled by the filtration system and consumed through a hose and a mouthpiece. Hookah smoking is typically practiced in groups, with the same mouthpiece passed from person to person. Hookahs originated in ancient Persia and India and have been used extensively for approximately 400 years. Today, hookah cafes are gaining popularity around the world, including Britain, France, Russia, the Middle East, and the United States. In 2006, an estimated 300 hookah cafes were in operation in the United States, and the numbers continue to grow.

Hookahs vary in size, shape, and composition. A typical modern hookah comprises a head (with holes in the bottom), a metal body, a water bowl, and a flexible hose with a mouthpiece. Water pipe smoking delivers the addictive drug nicotine and is at least as toxic as cigarette smoke. Due to the mode of smoking – including frequency of puffing, depth of inhalation, and length of the smoking session – hookah smokers may absorb higher concentrations of the toxins found in cigarette smoke. A typical 1-h-long hookah smoking session involves inhaling 100–200 times the volume of smoke inhaled from a single cigarette. The charcoal used to heat the tobacco increases the health risks by producing high levels of metals, monoxide, and cancer-causing chemicals. Hookah smokers are therefore at increased risk for the same kinds of diseases caused by cigarette smoking, including oral, lung, stomach, bladder, and esophagus cancers, reduced lung function, and decreased fertility. Hookah smoke also contains numerous toxic substances known to cause clogged arteries and heart disease. Hookah sharing may also increase the risk of transmitting tuberculosis, viruses such as herpes or hepatitis, and other illnesses. Secondhand smoke from hookahs poses a serious risk for nonsmokers, because it contains smoke from two sources, the tobacco smoke and smoke from the heat source (charcoal) used in the hookah. Hookah smoking is therefore not a safe alternative to cigarette smoking (American Lung Association 2007).

Smokeless Tobacco

Smokeless tobacco is consumed orally or nasally, (i.e., sniffed, sucked, or chewed) without burning or combustion. These products caused increased saliva production, which necessitates periodic spitting. Evidence shows that the average age of first-time users of smokeless tobacco is 10 years old, and that female youth are turning to smokeless tobacco as a means to control or lose weight. In the United States, nearly 600,000 females over age 12 years use smokeless tobacco.

In South- and South-East Asia, smokeless tobacco products are commonly handmade, but commercial products are also available and widely marketed. Commercial products such as *gutkha, zarda, pan masala*, variously consist of chewing tobacco combined with areca nut, slaked lime, and spices. Many of these

preparations are available in convenient small plastic and aluminum foil packets from shop venders. In the Amazon region of South America, *chimo* is the most common form of chewing tobacco. In North America, smokeless tobacco products are widely available in commercial forms, and heavily marketed. Sold in tins and pouches, these products may be in the form of prepackaged pouches or as loose tobacco.

Smokeless tobacco is a known carcinogen, with approximately 31,000 new cases of oral cancer diagnosed by 2006. Oral cancer can include cancer of the lip, tongue, cheeks, gums, and the floor and roof of the mouth, as well as the tonsils and oropharynx (back of the throat). This cancer kills readily via metastasis out of the oral cavity to vital organs of the body. Other cancers include cancer of the throat, larynx, esophagus, pancreas, and prostate. Smokeless tobacco is also believed to contribute to cardiovascular disease and high blood pressure because the nicotine gets directly to the blood stream through the lining of the mouth and/or the gastrointestinal tract. Users absorb two to three times the amount of addictive nicotine as cigarette smokers. Dipping eight to ten times a day can introduce as much nicotine into the body as an individual smoking approximately 40 cigarettes each day. Smokeless tobacco use can lead to nicotine addiction and dependence.

Another common disease found in smokeless tobacco users is leukoplakia, an oral lesion that appears as white patches on the cheeks, gums, or tongue. Leukoplakia can be a precancerous lesion that may progress to oral cancer. About 75% of daily users of smokeless tobacco will get leukoplakia. Other effects include gum disease, (periodontal disease), gum recession, loss of bone in the jaw, tooth decay, tooth loss, tooth abrasion (worn spots on the teeth), yellowing of the teeth, chronic bad breath, and unhealthy eating habits due to the users impaired sense of taste and ability to smell, they tend to eat saltier and sweeter foods. The two main types of smokeless tobacco in the United States are chewing tobacco and snuff (OCF 2009).

Chewing Tobacco

Chewing tobacco comes in the form of loose leaf, plug, or twist. Loose leaf is cured tobacco strips typically sweetened and packaged in foil pouches. To use, pieces are taken from pouch and placed between cheek and gums. Plug is cured tobacco leaves pressed together into a cake or "plug" form and wrapped in a tobacco leaf. To use, pieces are taken from the pouch and placed between the cheek and gum. Twist or roll tobacco is cured tobacco leaves that are often flavored, twisted together to resemble rope. To use, pieces are cut off from the twist and placed between the cheek and gum. Chewing tobacco is sometimes referred to as "spit tobacco" because users spit out the built-up tobacco juice and saliva. This mode of tobacco consumption is associated with American baseball players, and the tobacco industry used these sports heroes to market their products to youths.

Snuff

Snuff is finely ground tobacco that can be dry, moist, or packaged in sachets. Although some forms of snuff can be used by sniffing or inhaling into the nose, most users place the product between their gum and cheek. Users suck or chew on the tobacco, and the saliva that is produced can be spat out or swallowed. Moist snuff is cured and fermented tobacco that is processed into fine particles and often packaged in round cans. To use this product, a pinch or "dip" is placed between cheek or lip and gums. Dry snuff is fire-cured tobacco that is processed into a powder. To use, a pinch of powder is taken orally or inhaled through the nostrils. Sachets or snus is moist snuff packaged in ready-to-use pouches that resemble small tea bags. To use, a sachet is placed between the cheek or teeth and gums. Long-term snuff users may be 50% more at risk for cancer of the cheek and gums than nonusers.

Smokeless tobacco is a significant health risk and is not a safe substitute for smoking cigarettes. Chewing tobacco and snuff contain 28 carcinogens. The most harmful carcinogens are the tobacco specific nitrosamines (TSNAs). Snuff users consume approximately ten times more the amount of cancer-causing substances than cigarette users. These TSNAs are formed during the curing, fermenting, and aging of the tobacco. TSNAs have been detected in smokeless tobacco at over 100 times the levels of other nitrosamines that are allowed in foods such as bacon and beer. Smokeless tobacco contains over 2,000 chemicals including many cancer-causing substances such as acetaldehyde, formaldehyde, hydrazine, crotonaldehyde, arsenic, nickel, benzopyrene, cadmium, and polonium. While many of these elements are in smokeless tobacco in small volumes, there are no conclusive data on what the effects

are when a person is exposed to them over decades of use and exposure (National Cancer Institute 1992).

In 2006, data for the United States showed that school children are also smokeless tobacco users. Estimates showed that approximately 13% of males in high school and 2.3% females were users. At the middle school level, 2.6% were users, accounting for 4.1% male users and 1.2% female users. Evidence shows that adolescents who use smokeless tobacco are more likely to become cigarette smokers (U.S. Department of Health and Human Services 1994; World Health Organization 2007; CDC Fact Sheet 2009). According to the Campaign for Tobacco-Free Kids (2009), high school students who consume spit tobacco 20–30 days per month are nearly four times more likely to use marijuana than nonusers, and were approximately three times more likely to ever use cocaine and inhalants to get high. In addition, heavy users of smokeless tobacco were almost 16 times more likely than nonusers to consume alcohol. Table 1 summarizes the main tobacco products used by school children in the United States.

Factors Relevant to Adolescent Tobacco Use

Adolescents use of tobacco products are influenced by *situational/or environmental factors, personal/or individual factors, and structural factors. Situational/or environmental factors* are things located in the immediate environment and include smoking behavior and attitudes of their peers, siblings, and parents; norms, beliefs, and values shared with friends and other local people; the degree of peer pressure to smoke; the influence of the community at large through such variables as cigarette advertising and sponsorship or how available cigarettes are to adolescents. Other variables include the school community, through such factors as the school's policy and practices concerning students' use of tobacco products, the attitude of the teachers, and the teachers' own tobacco use behavior. *Personal/individual factors* associated with adolescent tobacco use include level of self-esteem, neuroticism and extraversion, level of academic achievement and impulsivity, adolescents social psychological situation including knowledge, attitudes, and beliefs, social norms and acceptability of use, availability, price, and promotion. At the individual level, this could be a perception that tobacco use helps concentration.

At the structural level, tobacco may be an expected part of social events such as parties and weddings, or tobacco may be provided by employers to young executives as an incentive for meeting quotas. *Structural factors* are also generally beyond the influence of the community or the individual and include such issues as laws on who may produce and buy tobacco, tobacco policies, taxation on tobacco, religious proscriptions on tobacco, and healthcare provision for victims of tobacco use. Some individuals are more likely to encounter opportunities to use – or avoid tobacco use, to change their tobacco use, and to be exposed to factors influencing tobacco use, than others. This may be considered in terms of the social networks, in which they are engaged, and the structural position of certain groups in the society by virtue of age, ethnic identity, economics, gender, and where they live (U.S. Department of Health and Human Services 1994, 2000).

Risk Factors for Tobacco Use

Adolescents are put at increased risk of initiating tobacco use based on the type of substance use and their mental health. Factors such as gender and age have been identified as having an impact on substance use. As it concerns the development and progression of

Tobacco Use. Table 1 Percentage of adolescents who smoke or use tobacco CDC (2006, 2007), SAMHSA (2005, 2006)

	High school		Middle school	
Tobacco products	Male (%)	Female (%)	Male (%)	Female (%)
Cigarette	21	19	6	6
Cigar	19	8	7	4
Smokeless tobacco	13.4	2.3	4.1	1.2
Bidis	3.3	2.4	1.9	1.5
Kreteks	3.6	2.0	1.7	1.0

substance use, evidence shows that risk factors would exert varying pressures during the different phases of progression. For example, in the early stages of experimentation with substances, the influence of parents and peers may be critical, but as the substance use increases, peer influence also increases. Risk factors that may be more predictive of progression and an increase to serious drug use include conflict in the home, impaired family relationships, parental substance use, and behavioral and/or emotional problems. Evidence shows that adolescents who smoked were more sensitive to peer pressure because of a greater dependence on the positive regard of peers compared to adolescents who do not smoke.

Many studies have documented the effects of parental influence on adolescents' substance use. Some of these factors include the attitude and behavior of parents, parents as role models, parent's behavior management styles, and the quality and consistency of the communication between adolescents and their parents. If the parent–adolescent bond is weak, this may increase the influence of peer pressure. Impaired parental attachment can also affect childhood adjustment by rapidly increasing developmental issues crisis proportions in the midst of adolescent development. Parental variables that are positively related to the reduction of substance use include parental supervision and adolescents' perceptions of the extent of their parents' concerns for their welfare. As peers become more influential in adolescence, the risk of early experimentation and progression of substance use increases. Personality factors have also been investigated and found to have a great impact on an adolescent's ability to resist peer group influence to use illicit substances. One such factor is self-efficacy – the perceived difficulty or ease of carrying through a behavior. Self-efficacy performs an important role in decision making, as adolescents will not agree to an act that they believe is not under their control, even with positive feelings toward that behavior and expectations of approval.

Studies have investigated family structure as a risk factor for substance use and found it to be highly related. More specifically, evidence shows that for adolescents living with both biological parents, the risk of becoming involved with substances such as cigarettes, marijuana, alcohol, or other illegal drugs was not likely; conversely, family structures that include the biological father but no biological mother were found to be associated with greatest risk. Nevertheless, the relationship between substance use and family structure is not fully understood. Beyond family structure other family risk factors include genetics, family mental health history, use and availability of substances by the family, poor or inadequate parental support, lack of or poor nurturance and care, poor supervision of relationships with peers, sexual or physical abuse, high stress and conflict within the home, and the low socioeconomic status of the family (SAMHA 1999). Tobacco use by adolescents is also associated with many health risk behaviors, including high-risk sexual behavior and the use of alcohol or other drugs. Table 2 summarizes the risk factors for tobacco use.

Theories of Adolescent Drug Use

Many theories with a self-medication hypothesis have been proposed as explanations of substance use. These theories stress the effects of specific substances on presenting symptoms of various disorders including anxiety and depression. For example, some individuals might smoke to "calm their nerves." Another view is that an individual may engage in specific substance use behavior as a result of impaired judgment and impulsivity brought on by a mental disorder (Khantzian 1985).

A second hypothesis suggests that the use of nicotine may change neurochemical systems that may, in turn, change the functioning of the brain. For example, the reward mechanisms associated with mood regulation may be affected by nicotine. A third hypothesis suggests a reciprocal relationship between smoking and depression. For example, smoking can be seen as a positive reinforcement, as it has been suggested that smokers who are depressed may smoke in a bid to rid themselves of the negative affect brought on by depression. If this succeeds, they are more likely to continue their smoking habits. A fourth hypothesis suggests that there are groups of common or highly associated variables such as psychological and genetic factors that have contributed to substance use.

According to Erikson (1950), the period of adolescence is characterized by developmental difficulties that may hasten the onset of substance use or emotional problems. Some of the factors identified as motivation for adolescent substance use include self-medication and using substances as a means of mental escape or to satisfy a particular need that otherwise cannot be

Tobacco Use. Table 2 Risk factors for smoking/tobacco use

Parental influence	Family structure	Other factor
Parental attitudes and behavior	Both parents – less likely to use	Genetics
Role modeling	Biological father/absence of biological mother associated with greatest risk	Parental psychopathology
Parental behavior management style		Parental substance use
Quality and consistency of family communication		Availability of substance
Supervision		Poor parental support
Perception of parental concern		Lack of care and nurturance
		Physical and sexual abuse
		Weak coping resources
		High stress
		Low economic status
		Age and gender
		Peer influence
		Emotional and behavior problems
		Self-efficacy
		High-risk sexual behavior
		Use of alcohol and other drugs

fulfilled. Studies have also indicated that the expectations held by the user as to the potential effects of the particular substance positively predict use of that substance. For example, some individuals use alcohol or cigarettes to reduce their stress.

Over the decades, several psychological and criminological theories have attempted to provide explanations why some adolescents engage in deviance and others do not. Herein, several theories are discussed, as it is believed that no one theory adequately explains these phenomena. These theories illustrate how risk factors at different levels of analysis, from different disciplines interact to increase the probability that the adolescent will commit antisocial behavior. These theories of drug use onset, as described by Petraitis et al. (1995) are (1) Theories of cognitive-affective disorders, (2) Theories of social learning, and (3) Theories of social attachment and commitment.

(1) Theories of cognitive-affective disorders are concerned with the adolescent's views about the advantages and disadvantages of drug use and the ultimate decisions to use. The following are common assumptions of these theories: (a) the main cause of substance use resides in the adolescent's beliefs in the power of the substances and, (b) the impact of other variables such as the adolescent's personality, or his or her involvement with substance-using peers will impact substance use. Two theories that have addressed these issues thoroughly from the cost-benefit/decision-making perspective are the theory of reasoned action as expounded by Ajzen and Fishbein (1980) and the theory of planned behavior by Ajzen (1985, 1988, 1991).

Theory of Reasoned Action: Ajzen and Fishbein (1980) proposed that adolescents' experimental substance use is determined by well thought out decisions followed by specific substance use. The decisions made are influenced by the adolescents' attitudes toward their own experimental substance use. Ajzen and Fishbein described these attitudes as reflecting "mathematical" calculations of personal gain from substance use experimentation and the affective value placed on those consequences.

This theory also claims that the adolescents' decisions are affected by their social normative beliefs regarding substance use. These beliefs are indicative of the adolescents' perceptions of the expectations and wishes of others for them regarding substance use and of their motivation or desire to comply with these expectations. It is therefore presumed that, adolescents will escalate their initiation into substance use if they perceive that the persons they esteem endorse substance use. Even when adolescents mistakenly assume that substance use is practiced widely among their peers and adults, they may experience some inner coercion to use.

Theory of Planned Behavior: This theory is seen as an improvement on the theory of reasoned action as proposed by Ajzen and Fishbein (1980). The theory of planned behavior claims that three and not two elements impact the decisions to engage in experimental substance use: These are attitudes, normative beliefs, and self-efficacy (the perceived difficulty or ease of carrying through a behavior). It further states that self-efficacy performs an important role in decision making, as individuals will not agree to an act that they believe is not under their control, even with positive feelings toward that behavior and expectations of approval. In applying this concept to experimental substance use, two forms of self-efficacy are identified as important. The first is called, "refusal self-efficacy," which is the adolescent's ability to withstand social pressure to engage in substance-using behaviors. The second is "use self-efficacy," which is the adolescent's beliefs that he or she has the knowledge to obtain and engage in substance use (Petraitis et al. 1995).

Social Learning Theory

(2) The social learning theory of experimental substance use shifts the attention from an adolescent's beliefs to the plausible causes of these beliefs. In the late 1930, sociologist Edward Sutherland presented his theory of differential association where he suggested that delinquency was learned behavior occurring in intimate settings. The theoretical applicability to smoking is that the initiation of smoking is strongly influenced by peers and the need to establish close peer bonds.

More recent social learning variables of modeling, observation, experimentation, and social reinforcement are well established. A young person with a high level of depressive symptoms, and associated poor self-esteem and self-confidence, might be particularly vulnerable to the influences of a smoking peer group. Indeed, Akers' (1977) social learning theory postulated that the perceptions adolescents hold concerning specific substances are the greatest predictors of adolescent experimental substance use. More traditional social learning theories like Sutherland's have presumed that adolescents' experimental deviance begins with the attitudes and behaviors of the adolescents' role models. The implication for smoking is that adolescents who learn to have high personal expectations from substance use will be more at risk for experimental substance use. Thus, any particular behavior is more likely to occur when it is differentially reinforced and is seen as desirable by important others (Petraitis et al. 1995).

Social Cognitive/Learning Theory The social cognitive/learning theory as postulated by Bandura (1986) argued that adolescents obtain their views on substance use from their close acquaintances who are substance users. Their interactions with these individuals will influence their experimental use. Their observation of close acquaintances positively engaging with specific substances will influence their beliefs in the benefits of these substances. Observation then influences the adolescents' beliefs and expected outcomes of the personal, social, and physiological results of experimental substance use.

Social cognitive/learning theory goes beyond social learning theory by incorporating the concept of self-efficacy. Bandura (1977, 1982) investigated both the concepts of refusal self-efficacy and use self-efficacy. When adolescents observe close acquaintances acquire and successfully use substances this may influence their use self-efficacy. On the other hand, observing close acquaintances withstand the pressures to use substances may influence the adolescents' refusal self-efficacy skills. This theory also indicates that observation is not the only mode of influence for adolescents' substance use, but to have role models and significant persons speak

favorably about substance use might influence the adolescent to initiate such behavior.

(3) *Theory of social attachment and commitment.* The social control theory of Elliott et al. (1985) and the social development model of Hawkins and Weiss (1985) posited that the adolescents' association with substance-using peers influences experimental substance use. These two theories are concerned with the reasons for negative peer attachments. One reason as identified is the adolescents' weak attachment to conventional bonds in society – repeating Hirschi (1969) and Reckless' (1961) social control ideas. The control theories postulate that all individuals have deviant impulses, but these impulses are controlled by the strong bond they hold to traditional society, including school, religion, and the family.

If these controls are missing, the individual is said to have a weak attachment to traditional bonds and therefore would not feel obligated to obey those rules or keep those standards. If the traditional society opposes experimental substance use, and other deviant behavior, then adolescents who have weak or tenuous bonds to society will not feel compelled to uphold traditional values and are therefore at risk to be influenced by substance-using peers. Secondly, if adolescents have weak or tenuous bonds to society it follows that they also have poor attachment to traditional role models. These traditional role models usually object to deviant behavior; therefore, adolescents who have weak attachment will gravitate toward peers who are more likely to encourage substance use.

Sociologists have established that social environment variables distant from an individual's behavior may predict drug use. This is within the context where, the structures of the economic, legal, social, and educational systems of a society are determinants of behavior. The social control theory identifies three plausible causes of weak commitment to conventionality (Elliott et al. 1985, 1989). The first possible cause is strain (as posited by Agnew 1992; Merton 1968). Strain, in this context, is defined as a disparity between the adolescent's desires and his or her recognition of available opportunities or avenues to achieve personal goals. The adolescent's desired goals may be educational or career. If these goals are frustrated, the adolescent may become uncommitted to society and ultimately become attracted to deviant peers who will, more than likely encourage experimental drug use. Some adolescents may also feel strain at home. This type of strain may weaken attachment to parents who oppose substance use, and in turn, strengthen the adolescent's attachment to substance-using peers. Other strains the adolescent may face include school and occupational strain.

A second source of weak commitment is social disorganization. Social disorganization includes the weakening of, or the inability of traditional institutions to control or regulate the behavior of members of the society. Adolescents who have weak or tenuous ties to traditional society and who reside in a disorganized neighborhood will theoretically have little attachment to parents, be disillusioned by failed institutions and can be drawn into relationships with substance-using peers. The third cause of weak commitment and attachment, as asserted by the social control theories is failure to socialize the adolescents to embrace the conventional norms of society. All these theories imply that role strain and social disorganization or the breakdown of traditional institutions may lead to inadequate socialization; that in turn, alters the social bonding and social learning variables, which may then lead to increased drug use among adolescents.

The Social Development Model

The social developmental model takes a developmental life course perspective that views delinquency as a product of antisocial behaviors that are influenced by specific risk and, or protective factors. While the social control theories focused largely on social systems of education, career, social disorganization, and on poor or inadequate socialization, the social development model is more concerned with the individual, his or her social interaction and development (Catalano and Hawkins 1996).

This theory assumes that the impact the family, school, and peers exert on adolescents' behaviors changes at the different stages and phases of development. Parents will have more influence at earlier stages but the peer group will override at later stages. As it concerns substance use, this model suggests that adolescents may become involved with substance-using peers if they were denied the opportunities for rewards at school and home, had few skills for success, and received very little reinforcement during interactions with parents and teachers. This approach presents a constant changing model of experimental substance use where there is interplay between adolescents and their interactions with deviant

role models. When adolescents' interpersonal and educational skills are poorly developed, nonexistent, or when they do not receive the required rewards from significant role models, adolescents may then have nothing to lose by becoming involved with substance-using peers.

Conclusion

Adolescents are especially vulnerable to using tobacco products and their parents, families, and peers play important roles in this habit formation. Tobacco consumption is associated with a number of serious medical diseases and a high prevalence of other health risks. Researchers have suggested that substance use increases between adolescence and adulthood and then declines when the individual get to their mid-20s. Cigarette smoking paralleled those for other drugs in showing a significant increase between adolescence and young adulthood. The increase can be explained by both adolescents who initiate use after high school, and by those who are irregular experimenters who move to regular use. However, unlike other forms of drug use, research evidence shows no decline in cigarette smoking in individuals in their late 20s. One reason identified for this is the nicotine dependence experienced by smokers, which might account for the relatively low cessation rates. Moreover, the negative health impacts of cigarette smoking or tobacco use may not be encountered until later ages and thus may not motivate attempts at quitting. It is therefore imperative that more attention be placed on the long-term effects of adolescent tobacco use.

Cross-References

► Substance Use Risk and Protective Factors

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Tolerance

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Tolerance has several important meanings. Three of them are directly relevant to the period of adolescence. One approach to tolerance refers to an increase in resistance to a drug's effects. That resistance translates into the need for an increase in dosage to maintain the drug's desired effect. In this sense, tolerance is like habituation, which is a form of learning in which individuals stop responding to a stimulus after a period of exposure. Another view deals with a willingness or disposition to permit choice or behavior. That meaning has to do with a sense of freedom for oneself or others, such as tolerance toward other views or perspectives regarding moral or social issues. A third meaning of tolerance relates to individual's ability to deal with reality that is different from what they wish. This last form relates most directly to frustration tolerance, which relates to psychological distress and problem behavior. All of these are forms of tolerance that are important to the period of adolescence.

In terms of tolerance involving a decrease in a drug's effect or the need for a larger dose to obtain similar effects, tolerance is of significance because it leads to higher levels of consumption. Higher levels of consumption tend to make more difficult to remove traces of the drug given that the body is more saturated with it, it creases problems with ensuring an adequate supply, and it places individuals at risk for fostering other symptoms of dependence (see e.g., Hoffman and Tabakoff 1996; Schuckit et al. 1997). During adolescence, alcohol continues to be reported as leading to higher tolerance for its effects. Adolescent drinkers report alcohol tolerance with high frequency in both community and clinical samples, with approximately 35% of adolescents in community surveys reporting tolerance (Lewinsohn et al. 1996) and with clinical samples of adolescents reporting tolerance symptom ranges from 27% to 81% (Stewart and Brown 1995; Winters et al. 1999).

When viewed from the perspective of tolerating others, tolerance remains an ambiguous concept open to interpretations, such as an indiscriminate acceptance of others and their ideas, the absence of prejudice, or simply putting up with others (as through forbearance) (see Robinson et al. 2001). These definitions do not necessarily lead to positive images of tolerance. Indiscriminate tolerance can lead, for example, to tolerating problematic attitudes relating to gender; and simply forbearing can lead individuals to act with restraint in the face of provocation but remain intolerant in their beliefs and thinking (see, e.g., essay on sexual

harassment). Regrettably, the study of tolerance has not attracted much attention, as the study of tolerance has been limited to either the study of political tolerance (see Avery 1988; Verkuyten, and Slooter 2007) or to the study of prejudice, which has been the subject of considerable research and theoretical development but, as recent reviews reveal, not so much success in reducing prejudice (for a review, see Paluck and Green 2009).

Tolerance also is of significance when viewed in terms of one's ability to deal with the difference between reality and aspiration (what one would like it to be). The inability to deal with frustration, that is, having a low frustration tolerance, links to numerous negative outcomes, such as anger, depression, and anxiety (see, Harrington 2006). Indeed, the concept of frustration intolerance in psychological disturbance plays a central role in Rational Emotive Behavior Therapy (see Harrington 2007). Researchers have viewed it as encompassing several components, especially emotional intolerance (the belief that emotional distress is unbearable and must be relieved or avoided quickly), discomfort intolerance (beliefs that life should be free of hassles, effort, and inconvenience), entitlement (demands for fairness and immediate gratification), and achievement frustration (demands for high standards and intolerance of these standards being frustrated) (Harrington 2007). As expected, the period of adolescence considerably shapes how one develops tolerance to frustration, and how that development during adolescence will affect one's future psychological development.

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Trajectories of Aggressive-Disruptive Behavior

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Overview

Identifying prototypical developmental trajectories of aggression has emerged as a useful approach to understanding variation in a range of outcomes (e.g., internalizing or externalizing symptoms, substance use, adolescent pregnancy, resilience) among adolescents with a common set of early risk factors. Life-course and transactional theories of development suggest differentiation of patterns of aggression, based on the *onset*, *persistence*, and *desistance* of antisocial behavior problems. A large body of longitudinal research provides empirical support for several developmental prototypes of aggression; however, there are still areas of contention and several gaps in the research. For example, because much of the early research on

developmental trajectories has focused on males, it is less clear how well these theoretical prototypes generalize to females. However, more recent studies have begun to shed light on potential gender differences in developmental trajectories. There is also some debate regarding whether the developmental typologies derived from data represent a "true" taxonomy, for, given any particular data set, researchers cannot know the actual underlying population distribution from which the observations were drawn. Procedures such as latent growth curve models and general growth mixture modeling are two statistical methods used to empirically derive these profiles. The utility of this body of work is to inform the development of preventive interventions targeting negative outcomes commonly experienced by youth with different patterns of behavior problems over time. For example, there is emerging evidence that the effectiveness of a given intervention may vary by the developmental trajectory of the adolescent's aggression. It is likely that better treatment effects would result from interventions that are tailored to the adolescent's developmental profile.

This essay reviews multidisciplinary theoretical perspectives and empirical research on developmental trajectories of aggressive-disruptive behavior in adolescence. It focuses on theories from the fields of criminology, developmental psychology, and public health regarding adolescent developmental trajectories. Particular attention is paid to Moffitt's (1993) dual taxonomy model, as it is one theoretical perspective that has had a fundamental impact on this area of research. The essay also summarizes empirical findings that have refined the field's conceptual understanding and knowledge of developmental trajectories. Statistical procedures for examining trajectories are presented, highlighting strengths and weaknesses of each approach. The essay concludes with a brief discussion of the potential utility of the trajectories approach to studying aggressive-disruptive behavior in adolescence, including implications for prevention and intervention.

Theoretical Perspectives on Developmental Trajectories of Aggression

Some of the first longitudinal studies of aggressive behavior patterns evidenced a tendency for delinquent behavior during early adolescence to precede criminal behavior during young adulthood (e.g., Robins 1978; Wolfgang et al. 1972). For example, a review of the psychological literature by Olweus (1979) indicated that a significant proportion of individuals who exhibit disruptive and problem behaviors during early childhood continue to do so into adulthood. Blumstein and Cohen (1987) proposed that a small subset of criminals has a criminal "career," much like a traditional work career; this relatively small group of individuals begins offending during adolescence and continues to do so well into adulthood. These and other early studies illustrated the importance of the time at which offending begins (i.e., onset), its developmental course (i.e., incidence and persistence), and the time at which it stops (i.e., desistance) when considering life-course patterns of antisocial behavior (also see Lilly et al. 2002; Piquero 2008; van Dulmen et al. 2009).

A series of life-course developmental and transactional models of antisocial behavior were proposed in an effort to describe the developmental course of behavior problems (e.g., Moffitt 1993; Patterson et al. 1989; Patterson and Yoerger 1997). These theories tended to focus on the variation in etiologic processes and outcomes for adolescents with behavior problems through discrete aggression trajectory profiles. Most of the previous criminological theories of the development of antisocial behavior (e.g., Cohen 1955; Hirschi 1969) purported that behavior problems typically surface during adolescence, stabilize for a few years, and then taper off during early adulthood (Lilly et al. 2002). This pattern is reflected in the age-crime curve (Blumstein and Cohen 1987).

Although multidisciplinary research on life-course theories of behavior problems suggests that both the onset and developmental course of behavior problems have important implications for understanding aggressive behavior and for developing effective interventions, determining a child's problem behavior pattern can be difficult. One factor complicating this process is that aggressive and delinquent behaviors typically co-occur with other mental health problems, such as substance use (Rutter et al. 1998). As adolescents develop, their symptoms typically show *heterotypic continuity*: the overt symptoms (e.g., behavioral problems) result from the same underlying problem, but, over time, the specific behavioral manifestations of those problems tend to shift into other domains. This evolution of symptoms often makes it difficult to distinguish

between the origins of specific behavior problems, mental health problems, and criminality (Rutter 1989).

In fact, many criminological theories were derived from observations of adolescent offending patterns, adolescents' self-reports of criminal activity, and arrest data, and thus tended to place less emphasis on delinquent behavior that occurred before the age of criminal responsibility (Lilly et al. 2002; Rutter et al. 1998). In contrast, psychological theories and research methodologies have tended to focus more on the development of problem (rather than criminal) behavior during the first decade of life, and less on outcomes occurring during late adolescence and early adulthood. Furthermore, some criminological theories place greater emphasis on state dependence into adulthood, whereas psychological theories assume stability in behavior problems, which typically persist across the life course (Moffitt 2006). Taken together, the life-course developmental and transactional theories have helped to bridge the criminological and psychological research by acknowledging the influence of early behavior problems and the tendency toward continuity over the life course (Kellam and Rebok 1992; Lilly et al. 2002; Moffitt 1993).

The Dual Taxonomy Model

Among the most widely cited life-course theories is Moffitt's (1993) dual taxonomy model. Her dual taxonomy includes both a *life-course persistent* aggressive behavior pattern and an *adolescent-limited* aggressive behavior pattern. This model is considered in greater detail, as it has had a significant impact on researchers' conceptual and methodological approaches to examining trajectories of aggressive-disruptive behavior. After providing a brief overview, differences between these two trajectories are discussed with regard to onset, persistence, and desistance, as well as potential risk factors and gender differences between the two trajectories.

According to Moffitt's (1993) theory, individuals who follow a *life-course persistent* (LCP) trajectory represent a small group of youth whose aggressive behavior problems begin in early childhood and persist through adolescence and adulthood; an individual with an *adolescent-limited* (AL) profile typifies a relatively larger group of young people whose onset of delinquent behavior occurs early in adolescence, but desists by early adulthood. Adolescents who follow an LCP trajectory demonstrate chronic behavior problems prior to first grade, and a pattern of aggressive behavior; trouble accepting authority in childhood ensues, leading to involvement in delinquent or criminal behavior in early adolescence. An important defining feature of the LCP as compared to the AL trajectory profile is whether the problem behaviors present across multiple contexts. With the AL trajectory of aggression, behavior problems typically are more irregular and occur less systematically across contexts, whereas with the LCP trajectory, the behavior emerges, becomes chronic, and eventually affects multiple contexts and systems (schools, home life, neighborhoods, and ultimately the juvenile and criminal justice systems).

With regard to the onset of problem behaviors, by definition, the LCP youths' aggressive or antisocial behavior emerges earlier developmentally than it does among AL youth. Yet it may be very difficult to distinguish AL from LCP youth by a single delinquent act during adolescence. Despite distinctions earlier in childhood, by adolescence, LCP and AL youth tend to exhibit problem behavior at similar magnitudes of severity (Nagin et al. 1995). In fact, the age of first arrest is the same for both AL and LCP youth. This may be primarily the result of the minimum legal age for criminal responsibility (where LCP youth were too young for police arrest), or, consistent with heterotypic continuity, LCP youth's behavior problems may not yet have been considered "criminal." There are also differences in the two trajectories with regard to persistence vs. desistence. Whereas AL youth discontinue delinquent behavior by their late twenties, an individual following an LCP trajectory will continue offending into his or her thirties (Moffitt 1993; Moffitt et al. 2002). Researchers have theorized that AL youth desist offending behavior at "turning points" such as entering a good marriage, military service, or stable employment, which may not be as influential or as likely to occur for LCP youth (Laub et al. 1998; Lilly et al. 2002; Sampson and Laub 1993).

Risk factors for different developmental trajectories. Early research expanded and clarified a unique combination of risk factors that differentiate LCP and AL trajectories (Moffitt et al. 1996; Patterson and Yoerger 1997). For example, youth who follow an LCP trajectory characteristically experience more individual and family risk factors, whereas AL youth experience more peer risk factors and only moderate individual and

family risk factors. Normative youth typically have less risk in these areas than either group. For example, difficult temperaments in early childhood (as early as age 3 or 4; Moffitt et al. 1996), poor executive functioning, and low IQ represent individual risk factors for LCP youth. Moffitt originally theorized there may be a genetic basis for these behavior problems, and some evidence has emerged to support this (see Taylor et al. 2000). Hyperactivity in early childhood is another salient feature of the LCP trajectory that may be the result of genetic predisposition rather than family, peer, or environmental factors (Silberg et al. 1996). Coercive and inconsistent styles of parenting (Patterson et al. 1989) are signature family risk factors for youth on an LCP trajectory. Poor parental monitoring may moderate AL youth's susceptibility to the influence of deviant peers (Vitaro et al. 2000).

Although research suggests an overall effect of deviant peers for both AL and LCP youth (either via connections to weapons and drugs, or via deviance training; Dishion et al. 2004), peer influence tends to play out differently in each trajectory. Specifically, relationships with deviant peers appear to be closely linked to the onset of problem behaviors in adolescence among AL youth. Relatedly, much of AL problem behavior appears to occur as part of a delinquent group activity (Patterson and Yoerger 1997). On the other hand, for youth on an LCP trajectory, problems with social relationships tend to emerge much earlier during childhood, when experiencing rejection by prosocial peers. This rejection may limit opportunities for developing effective, prosocial interpersonal skills (Bradshaw and Gabarino 2004), which, in turn, may lead to decreased social ties over time. According to Moffitt (1993), LCP offenders may be better able to offend alone. This can be observed in the increasing pattern of solo offending in the transition to adulthood when AL offenders tend to discontinue delinquent activities. Additional research is needed to examine risk factors within the school and community contexts which distinguish the AL and LCP trajectories.

Gender differences. Much of the longitudinal research on aggressive trajectories has focused on males, thereby precluding broad generalization of these developmental trajectory life-course theories to females. Although the risk factors associated with LCP and AL trajectories may be the same for boys and girls (Hipwell et al. 2002; Rutter et al. 1998), available research indicates that girls are much less likely to demonstrate either of the overarching LCP or AL patterns of aggressive behavior (i.e., ratio of 1 female to 1.5 males for AL, a ratio of 1 female to 10 males for LCP; Moffitt and Caspi 2001). Specifically, Moffitt and Caspi (2001) found that 26% of males were in the AL trajectory, compared to 18% of females, whereas 10% of males were in the LCP trajectory, compared to just 1% of females. It is important to note, however, that there is some evidence that early pubertal maturation may increase girls' susceptibility to developing behavior problems. For example, an early onset of pubertal maturation has been linked to both internalizing and externalizing problems, including substance abuse, school drop-out, depression, and eating disorders (Caspi et al. 1993). Additional research is needed to better understand potential gender differences in developmental trajectories. Such work would clarify whether there are merely prevalence differences across the different trajectories, or if there are in fact substantive gender differences in patterns of problem behavior (Bradshaw et al. 2010).

Empirical Support for Developmental Trajectories

Whereas findings from longitudinal studies of samples from the USA, Canada, and New Zealand (Broidy et al. 2003) have largely supported Moffitt's and other researchers' theories on LCP and AL youth (Piquero et al. 2003), empirical research also suggests the possibility of a more nuanced subset of developmental trajectories (Broidy et al. 2003; Nagin and Tremblay 1999; Schaeffer et al. 2003). For example, several studies using large, epidemiologically defined samples, longitudinal measurement, and person-centered analysis have reported two or more "early starter" (Patterson et al. 1989) trajectory profiles (also see Loeber et al. 1993). These are trajectories in which behavior problems have their onset at different points during childhood, prior to adolescence. For example, one early starter group began displaying chronic behavior problems by first grade (similar to Moffitt's LCP group); another group (similar to Loeber and Stouthamer-Loeber's [1998] "childhood onset" subtype) showed a pattern of increasing problem behavior from school entry through early adolescence (Broidy et al. 2003; Moffit and Caspi 2001; Nagin and Tremblay 1999; Schaeffer et al. 2003, 2006).

Empirical support for the LCP and childhood-onset groups of early starters showed that, in boys, both groups were at high risk for conduct disorder, antisocial personality disorder, and detention in juvenile and criminal justice systems (Schaeffer et al. 2003). In girls, a distinct pattern was identified by Cote et al. (2001) and Schaeffer et al. (2006) in which the LCP pathway was confirmed, while a second pathway was observed consisting of a stable, moderately high demonstration of antisocial behavior from first grade and throughout elementary school (in contrast to the pattern of increasing behavior problems throughout elementary school among childhood-onset boys). Taken together, these findings suggest that there may be at least two trajectories of early antisocial behavior development: a chronic high antisocial behavior pathway, akin to Moffitt's LCP trajectory, and a low moderate/increasing antisocial behavior pathway, characterized by a consistently moderate (for girls) or an increasing (for boys) level of aggressive-disruptive behavior over time. Bradshaw et al. (2010) further investigated these gender differences and found that girls with chronic, high aggression trajectories (in line with LCP trajectories) experienced more negative outcomes than girls with consistently moderate levels of aggression; however, among boys, an equal risk of negative outcomes was found for chronic high aggression-disruption (LCP) boys as boys with the childhood-onset pattern.

Statistical Procedures for Examining Trajectories

Earlier studies of aggressive-disruptive behavior typically assumed that there was a single growth trajectory. Therefore, repeated measures on a sample of individuals often were modeled using a particular form of multilevel data, in which time or measurement occasions are nested within persons (e.g., multilevel modeling or hierarchical linear modeling [HLM]; Raudenbush and Bryk 2002). Alternatively, a multivariate latent variable approach can be used, where the parameters of the individual growth curves are modeled as latent variables (e.g., latent intercept and slope factors) (Muthén 2004). More recently, there has been a shift from "variable-centered" approaches, which emphasized general predictors of variance in behavior, to "group-centered" approaches, which describe discrete patterns of development over time (Laursen and Hoff 2006; Magnusson 1998; Sampson and Laub 2005).

The two most common statistical methods currently used to examine heterogeneity in developmental trajectories are latent class growth analysis (e.g., semi-parametric group-based modeling approach [PROC TRAJ in SAS]; Nagin 2005) and general growth mixture modeling (GGMM; Muthén 2004). Like traditional growth modeling techniques, GGMM estimates latent variables based on multiple indicators (Muthén and Muthén 2000). The multiple indicators of latent growth parameters correspond to repeated outcomes at different time points, such as a series of teacher ratings of the youth's aggressive-disruptive behavior over several years. GGMM tests whether the population is constructed of two or more discrete classes (i.e., pathways or trajectories) of individuals, with the goal of determining optimal class membership for each individual. Evidence for these different trajectories of aggressive-disruptive behavior exists when models involving two or more latent classes of growth provide a better fit than a traditional single class growth model (Muthén 2004).

Debate. Relative to conventional latent growth curve models, GGMM is preferred by some researchers because of its flexibility. This flexibility pertains both to the way in which the population heterogeneity in the growth process itself may be described, as well as to how parameters are created to represent associations of predictors and distal outcomes in the growth process (Petras and Masyn 2010). Rather than assuming that the individual growth parameters (e.g., individual intercept and growth/slope factors) are identically distributed (i.e., are drawn from a singular homogeneous population, as is done in latent growth curve modeling), it is assumed that the individual growth parameters are drawn from a finite number of heterogeneous subpopulations. GGMM is similar to Nagin's (2005) semi-parametric group-based modeling approach, in that classes define different trends over time in repeated measures (Muthén 2000). However, unlike the semi-parametric group-based modeling approach, GGMM allows for modeling of class-specific levels of variation. GGMM allows for the possibility of heterogeneity within classes, rather than assuming that all youth within a given class have identical patterns of aggressive behavior. Allowing for heterogeneity also tends to improve overall model fit and classification accuracy (Muthén 2000). There also is some debate regarding the most appropriate process for selecting the number

of trajectories or classes, as the selection process relies on both substantive interpretation as well as careful review of a set of fit indices (Nylund et al. 2007).

Another point of contention among researchers is the extent to which the empirically derived models represent a "true" underlying construct of the varying developmental trajectories of aggression, or whether the data is merely self-validating (Sampson and Laub 2005). More specifically, in any given data set, one can never know the true population distribution from which the data were drawn (Petras and Masyn 2010). As a result, there has been a lively ontological debate about whether these typologies describe an underlying true classification of disparate trajectories. Nonetheless, at least partially characterizing the heterogeneity in trajectories of aggression likely has both empirical and conceptual advantages. Moreover, further exploration into risk and protective factors, as well as consequences, may help to determine the concurrent and predictive validity of these developmental trajectory profiles.

Utility of the Trajectories Approach

Modeling developmental trajectories of aggression demonstrates remarkable potential for future empirical investigations of normative and nonnormative behaviors and their outcomes over the life course. There is also some evidence that the effects of interventions may vary as a function of the adolescents' trajectory of aggressive-disruptive behavior. For example, Muthén and Curran (1997) showed that the effects of the Good Behavior Game, a classroom management strategy used in early elementary school, produced the strongest effects among boys with a pattern of high levels of aggressive-disruptive behavior (also see Kellam et al. 1994, 1998).

Similarly, Petras et al. assessed the impact of the Good Behavior Game intervention on the growth of aggressive-disruptive behavior within several aggressive-disruptive behavior trajectory classes (Petras et al. 2008); they found that both males and females who exhibited either a high or increasing course of aggressive-disruptive behavior over the elementary school years were at significantly higher risk of antisocial outcomes in early adulthood in contrast to those who exhibited stable, low level of aggressive behavior. With regard to treatment effects, Petras et al. (2008) demonstrated a significant and beneficial impact of the Good Behavior Game intervention on both the growth of aggressive-disruptive behavior among boys in the chronic high antisocial behavior (i.e., started high and remained high) trajectory class and the distal outcome of antisocial personality disorder. This suggests that early aggressive behavior may be malleable, and, in turn, that a reduction in the growth of aggressive-disruptive behavior among boys in the chronic high antisocial behavior growth trajectory may translate into later reductions in antisocial behavior in young adulthood. These findings also illustrate the potential utility of GGMM and other growth modeling procedures in evaluating the impact of universal preventive interventions, given that the benefits of such programs are likely most apparent in those at elevated risk (Ialongo et al. 2006).

In conclusion, examining trajectories of aggressive-disruptive behavior may shed light on the etiology and development of behavior problems during adolescence. By employing such an approach, both conceptually and empirically, researchers may better characterize the developmental course of aggressive-disruptive behavior problems and elucidate potential risk and protective factors associated with different patterns of behavior problems, as well as different developmental consequences (e.g., Bradshaw et al. 2010). These approaches may also inform the creation or selection of different preventive interventions that target problem behaviors during adolescence. Given the emerging evidence that the effectiveness of a given intervention may vary by the developmental trajectory of the adolescent's aggression, it is likely that the outcomes would be maximized if the intervention could be tailored to the adolescent's developmental profile (Bradshaw et al. 2008). Additional empirical research is needed to evaluate the effectiveness of various programs at preventing or stemming different patterns of behavior problems during adolescence.

Cross-References

► Aggression

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Transactional Models

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Overview

Transactional models of development, which can be conceptualized as the continuous bidirectional or reciprocal influences between the child and the child's context, have been applied to understand infant, child, and adolescent development. This essay will present a historical overview of the transactional model, provide information in terms of the research designs usually employed for the investigation of the transactional model, and highlight transactional studies that have been applied to understand adolescent development. It is also argued that the incorporation of transactional models in the study of adolescent development is essential because adolescence comes with a number of social

changes, in the family, school, and peer context, but also changes in the individual, such as increases in behavioral and emotional problems. Thus, transactional models of development during the adolescence period that take into account social and individual reorganizations and the longitudinal reciprocal influence between contextual and individual variables are important. Finally, different gaps in knowledge will be presented and future directions for research will be provided.

Transactional Models of Development

Understanding the processes that lead to positive and negative developmental outcomes requires a model of both individual and contextual influences. Based on this idea, Sameroff and Chandler (1975) proposed a transactional model of development, in which adaptive and maladaptive developmental outcomes are a product of the multiple transactions among child, parents, or other social agents. Thus, the transactional model can be conceptualized as the continuous bidirectional or reciprocal influences between the child and the child's context. The incorporation of transactional models in the study of adolescent development is essential because adolescence comes with a number of social changes, in the family, school, and peer context, but also changes in the individual, such as increases in behavioral and emotional problems. Thus, unidirectional models of development during the adolescence period that do not take into account social and individual reorganizations are obsolete, especially when compared to a model that takes into account the longitudinal reciprocal influence of both the context and the individual.

The transactional model is usually employed in developmental psychopathology research, which aims to understand developmental deviations and the processes that lead to developmental adjustment or maladjustment (Sameroff and MacKenzie 2003). One of the key issues in developmental psychopathology is the understanding of causal processes and the realization that most mental disorders are not due to single linear causes, but due to the complex interplay of multiple genetic, individual, and environmental risk and protective factors. Understanding this issue requires dynamic models of development that take into account the interplay or the interaction between the individual and the individual's context, such as the transactional model. Additionally, the transactional model proposes that linear models are often inadequate for capturing the complexity of development and behavior, although longitudinal nonlinear models may have the ability to elucidate the heterogeneous nature of adolescent development as well as the complex link between context and adolescent individual characteristics. Moreover, developmental psychopathology aims to prevent psychopathology, promote mental health, and to improve human condition, and the transactional model may provide evidence in terms of where and when preventions, interventions, or improvements need to be directed (Sameroff and MacKenzie 2003). Therefore, transactional models of development are important for understanding and investigating the development of adjustment or maladjustment, but also for providing information for prevention and intervention efforts. The present essay aims to (1) present a brief historical overview that lead to the development of the transactional model, (2) provide information in terms of the methodology and the statistical analyses usually employed for the investigation of the transactional model, (3) review research that investigates developmental questions by employing the transactional model, and (4) address different gaps in knowledge and provide future directions for research.

Historical Overview: Major Theorists and Researchers

Pioneers in Developmental psychology, such as Vygotsky and Piaget, proposed that the child is active in development. Children not only change through their transactions with the environment, but the child's developmental changes also influence or alter the experiences children receive from their environment. In the last 5 decades, two lines of research were important for the emergence of the transactional model: Thomas et al. (1963) temperamental research, and Bell's (1968) work on the reinterpretation of the direction of effects in the investigation of socialization. Both of these efforts were in response to the dominant view that parents, and especially mothers, caused the child's behavior. Thomas et al. (1963) work demonstrated that the child's difficult temperament influenced parenting negatively, and in turn negative parenting was related to the child's development of behavioral problems, therefore providing evidence for a transactional association between the child's individual characteristics

and the child's social context. Thomas and colleagues also proposed the goodness-of-fit theory and suggested that behavioral problems develop when there is a mismatch between the child's difficult temperament and parenting practices.

Bell (1968) pointed out that the association or correlation between the child's behavior and parental behaviors may be explained by the child's actions or characteristics, reinterpreting prior explanations that parents affect the development of children over time. The control systems theory proposed by Bell and colleagues states that parents have a certain tolerance toward the child's behavior. A child's negative behavior, which might be characterized by aggressiveness or hyperactivity, can reach the upper limit of the parent's tolerance resulting in the parent's "upper-limit control" reactions, such as physical punishment, control, conflict, and restriction. However, a parent will respond with "lower-limit control" actions, such as emotional stimulation or offering of help, when the lower limit of the parents' tolerance is approached because of the child's social withdrawal, inactivity, or shyness. Therefore, parental behaviors and techniques may be modified based on the child's actual characteristics and behaviors. Bell also proposed that children have a certain tolerance for the parents' behaviors that may result in upper- or lower-limit control reactions, suggesting that parents and children need to reciprocally adapt to each other's behaviors.

Sameroff and Chandler (1975) extended this line of research, which was mainly related to the parent–child relationship, to propose the transactional model of development. Sameroff and colleagues argued that transactional processes, which can be applied to a variety of social settings, need to be an important component of developmental research and theory. The transactional model proposes that the child's development can be explained through the reciprocal interchanges between the child and the environment (e.g., parents, peers, and teachers). These interchanges are recurrent, and the child's development cannot be understood without considering the interactions between the child's characteristics and contextual variables over time. Although much of the research to date has tested unidirectional models of development in which different social settings affect children's attributions and characteristics or vice versa, evidence continues to build in support of a transactional perspective that tests reciprocal influences over time (Sameroff and MacKenzie 2003). Indeed, such a model is necessary in order to paint a more complete picture of the association between adolescents' adjustment problems and their changing environment.

Bronfenbrenner (1977) expanded on these ideas by proposing a transactional-ecological model of development. According to this approach, understanding developmental processes requires the consideration of ecological effects, that is, the multiple social contexts in which the child is embedded, as well as transactional effects, that is, the reciprocal association between children and adolescents' attributes or characteristics and their social contexts. Guided by this approach, researchers examine the ways in which individual characteristics, such as intelligence and temperament, and the interconnected multiple social contexts in which adolescents are nested simultaneously interact with one another and influence developmental outcomes. Transactions occur within and between the different ecological settings, and within and between the microsystem (the immediate setting in which the individual operates, e.g., family, school, and peer context), the mesosystem (involves the interactions between the microsystems), the exosystem (the broader community systems, e.g., government agency and media exposure), and the macrosystem (the values and beliefs of the culture). Moreover, the adolescence period is a transitional period marked by changes in the individual and the individual's familial, school, and peer context, and therefore it is important to examine the extent to which factors in one social context are related to children's adjustment in another, changing context (Bronfenbrenner 1977). Finally, multiple distant and proximal social settings tend to operate with the individual's characteristics to influence development. As a result, in addition to the microsystemic factors, exosystemic, such as media violence exposure, and macrosystemic, such as ethnicity, factors need to be incorporated in developmental research.

Methodology, Measures, and Statistical Analyses

To investigate transactional models of development, longitudinal studies that follow a large number of individuals across different time points are needed. Multiple assessment periods allow for modeling change and identifying specific points in time that change

occurs. Furthermore, the assessment periods need to be frequent enough to identify specific periods in development during which changes in the individual or the individual's social context reciprocally influence each other. To investigate bidirectionality and transactional models of development, usually researchers measure contextual and individual variables in the same time period, and then measure the same constructs based on the same items across different developmental periods. This strategy allows for measuring growth and statistically analyzing change over time. To measure contextual and individual variables, researchers employ different methodologies such as observations, questionnaires, and interviews. Moreover, studies usually employ large community samples, and therefore transactional models of development are investigated in general population samples. A minority of research investigates transactional models in high risk and clinical samples, which is also important as a higher rate of psychopathological problems may be identified. In terms of gender, the majority of studies include both boys and girls in their samples, although some studies investigate transactional model in samples of boys and samples of girls. Furthermore, transactionally oriented studies usually employ diverse samples in terms of socioeconomic status and ethnicity. Additionally, transactional models have been investigated in different countries and cultural groups, and support the contention that transactional models are important for understanding the development of adaptive and maladaptive outcomes across cultures.

In terms of age, transactional models of development are more often applied during infancy and childhood than adolescence (Sameroff and MacKenzie 2003). However, as Gross et al. (2008) suggested, transactional effects are not time locked but need to be examined throughout the path of development. Moreover, the magnitude of effects might vary as a function of age. Gross et al. (2008) provided evidence that during the transition to adolescence the child and parent effects are more prevalent, due to changes in physical maturation and the social environment. For example, parents might find it very difficult to deal with adolescents' behavioral and emotional changes, which might then lead to cycles of coercive processes (Patterson 1982). In addition, the child effects might increase in magnitude during adolescence because adolescents gain more autonomy and independence. These social and individual changes might increase the strength of the bidirectional effects between adolescents and parents.

In addition to designing their study, researchers need to identify the proper statistical analytical tool for testing their hypotheses. According to Sameroff and MacKenzie (2003), there are a number of statistical analyses that researchers employ to investigate transactional models of development. The simplest of these analyses are regression techniques or analysis of variance (ANOVA) techniques. These types of analyses have the power to investigate the interaction between child and context through moderator analyses. For example, negative parental behaviors may contribute to adolescents' maladjustment for a group of adolescents characterized with difficult temperament, but not for resilient adolescents. This association also suggests that both risk and protective developmental processes need to be taken into account to understand adolescent development.

With the advent of structural equation modeling, a number of sophisticated longitudinal statistical techniques were developed for the investigation of transactional models of development. For example, a number of studies employ longitudinal cross-lag models over different waves of measurement to investigate the reciprocal link between contextual and individual variables (e.g., Fanti et al. 2008). Such a model is beneficial because it has the power to provide latent factors based on measured variables and allows for the investigation of how these latent factors relate to each other across time. Furthermore, longitudinal cross-lag models are advantageous because they control for the association between the variables at each time point of measurement. Individual and contextual variables tend to be correlated, and the inclusion of these variables in the same model has the power to clarify the unique reciprocal effects of different variables over time. Even though cross-lagged analyses is the method of choice for investigating the transactional model, investigators started employing latent growth curve modeling to investigate whether rates of change in contextual and individual variables are correlated. The combination of latent growth curve modeling and cross-lag modeling allows investigators to test the association between developmental trajectories and to identify the reciprocal influences between time-specific measures. According to Gross et al. (2008), latent growth curve

modeling should be followed by cross-lagged models to test for reciprocal associations between contextual and individual variables at specific points in time.

Research Examples

In this section, empirical work that investigated the association between externalizing and internalizing problems and contextual variables will be reviewed. The section mainly focuses on the transactional association between parenting or the parent–adolescent relationship and the child's behavioral and emotional problems. Additionally, empirical evidence for the transactional association between individual variables and maternal depression will be provided. Finally, the transactional association between peer-relationship variables and child psychopathology will be briefly presented.

Parent–Adolescent Relationship

Most researchers now agree that in symbiotic relationships, like the one between parent and child, influences become reciprocal over time. However, empirical evidence supporting this claim is limited. In fact, the majority of research on the parent–child relationship tends to investigate mainly the most obvious path. That is, how parental attributes or behaviors predict or relate to children's outcomes or adjustment. This is mainly due to the traditional views of development, which have tended to conceive developmental change as an outcome or by-product of parenting. Even though the majority of relevant studies tend to investigate the parent–child relation using a unidirectional, parent-effect model claiming that parenting affects child behavior, several researchers have argued that the reverse phenomenon is also possible. As Bell (1968) pointed out, the correlation between the child's behavior and parenting may be a result of the disruptions in the family environment caused by the child's actions.

In the literature investigating child-effect models, there is evidence suggesting that child behavioral tendencies influence parenting discipline tactics, and other adult behaviors, including stress, depression, marital quality, alcohol consumption, social life, and parenting self-efficacy (Gross et al. 2008). For example, child externalizing behaviors, which include hyperactivity, aggression, defiance, attention problems, antisocial behavior, and conduct problems might be related to decreases in nurturing parenting and parental involvement, due to the parents' inability to control their child's behavior. In general, studies examining child effects show decreases in positive parenting behaviors and increases in control behaviors in response to children's negative behavior (Barber 1996; Patterson 1982; Sameroff and MacKenzie 2003). Therefore, parents may react to their child's behavior rather than (or in addition to) influencing it by their own actions. Furthermore, in accordance with Bell's control systems theory, parents may be more protective and less demanding toward their children to compensate for their child's social deficiencies related to internalizing problems (anxiety and depression). As with externalizing problems, a number of studies provided evidence that a child's internalizing problems influence the child's relationship with their parents and parenting behaviors (e.g., Barber 1996; Fanti et al. 2008).

However, both the child-effect and the parent-effect approaches are limited in that the parent-effect model does not take into account the effects individuals have on their environments, and the child-effect model fails to take the environment into account (Bell 1968). Does negative parenting influence the child's behavior, do children influence parenting, or is there a cycle of coercive processes in which both negative parenting and negative child behaviors exacerbate each other, as Patterson (1982) suggested? The transactional perspective has the power to address the limitations in the parent and child-effect models because it proposes that the individual and his or her environment continually influence one another in a reciprocal manner (Sameroff and Chandler 1975; Sameroff and MacKenzie 2003). According to Sameroff and MacKenzie (2003), "developmental outcomes are neither a function of the individual alone nor a function of the experiential context alone. Outcomes are a product of the combination of an individual and his or her experience" (p. 614). Thus, the transactional model proposes that individuals are both the products and active producers of their personal development and of their social environments in which they are situated. Each individual uniquely influences any situation that he/she is in, which is probably also true for the parent–child relationship.

Patterson's (1982) social-interactional theory of coercive family processes, which is one of the most frequently cited models of transactional effects, proposes that the child's antisocial behavior develops

through a cycle of coercive family exchanges. Patterson proposed a model of gradual escalation in parent–child conflict with both the parent and the child being active participants. Initially, unskilled parenting and poor discipline and management skills result in an increased likelihood of child coercive responses. On the other hand, the child's difficult, irritable, and defiant temperament also has the power to influence parenting negatively, and, according to Patterson's model, unskilled parents use harsh discipline techniques to control their child's difficult behavior. The harsh discipline parenting practices and the disrupted family management skills escalate the child's antisocial behaviors and characteristics, and the intensified parent–child conflict and the child's noncompliance and coercive features further influence parenting negatively. Through these bidirectional negative interchanges, the child's antisocial behavior escalates. The child also enters into cycles of coercive exchanges with peers, other family members, and other adults due to his or her antisocial characteristics, providing evidence for a transactional-ecological model for the development of antisocial behavior. These bidirectional influences result in further escalating and finally maintaining the child's negative and antisocial behaviors and other maladjustment outcomes, such as academic failure.

Patterson and his colleagues run a series of Structural Equation Modeling studies and found support for the social-interactional theory of coercive family processes. The researchers used a multimode (using multiple methods of assessment) and multiagent (taking into account responses from children, parents, peers, and teachers) approach to measure antisocial behavior in boys coming from different socioeconomic backgrounds. The studies also measured parental discipline, monitoring practices, and the child's coercive behavior in the home. The findings provided evidence that inept discipline exacerbated the child's antisocial behavior and also provided evidence for a bidirectional association between inept discipline and child coercion. Additionally, the establishment of the child's antisocial behavior was related to lower peer acceptance, lower self-esteem, and low academic performance.

Transactional socialization processes were also found between parenting or the parent–child relationship and different types of externalizing (e.g., aggression, delinquency, and substance use) and internalizing (e.g., depression and anxiety) problems. Based on the transactional model, the parenting environment is expected to have a potent influence on offspring psychopathology, and the child is expected to influence his/her own environment by provoking certain parental behaviors or by influencing negatively the parent–child relationship. For example, Barber (1996) tested a longitudinal bidirectional model of parental control and youth problems during early and middle adolescence. The sample was socioeconomically and ethnically diverse and was drawn from schools in the Ogden school district, USA. Barber employed a structural equation model to provide evidence of a bidirectional association between adolescent depression and delinquency and parental psychological control (refers to control attempts that intrude into the psychological and emotional development of the child) and behavioral control (refers to parental behaviors that attempt to control or manage children's behaviors). The findings suggested that psychological control predicted adolescents' depression and delinquency, while behavioral control only predicted delinquency, after controlling for prior levels of the child's depression and delinquency. The results also suggested that adolescents' depression and delinquency were related to higher use of psychological control by parents 1 year later, while delinquency resulted in parents using less behavioral control 1 year later. The results did not suggest any gender or age differences, between early and late adolescents. In conclusion, these findings provide evidence for a bidirectional association between delinquency and behavioral and psychological control. This bidirectional association suggests that parents of delinquent youth are more likely to increase their efforts to psychologically control their children, although they may decrease their behavioral control due to their inability to control their child's behaviors. The child's depression was only reciprocally related to psychological control, providing evidence for the importance of psychological control for both emotional and behavioral problems.

Fanti et al. (2008) proposed a transactional association between mother–adolescent and father–adolescent relationships and internalizing and externalizing problems. The authors hypothesized that adolescents play a significant role in developing their perceptions of their quality of relationship to their parents. These perceptions were then hypothesized to guide and motivate their further course of personal

development, and in turn, their emotional and behavioral characteristics were hypothesized to further shape their perceptions of their quality of relationship to their parents. Thus, Fanti et al. (2008) conceptualized the development of internalizing and externalizing problems as a product of the continuous reciprocal influence between adolescents and their family environment. The study was based on previous transactionally oriented studies that examined the reciprocal association between parenting and externalizing problems and between parenting and internalizing problems. Even though the majority of these studies supported a transactional association between the quality of adolescents' relationships with their parents and behavioral and emotional problems, some contradictory findings suggesting a parent-effect-only model or a child-effect-only model were also evident. Therefore, some studies provided evidence that the adolescent's behavioral and emotional problems affect parenting behaviors in a more consistent and statistically significant way suggesting a child-effect model, while other studies provided evidence for the reverse phenomenon, that is a parent-effect model. Taking these contradicting evidence into account, Fanti et al. (2008) developed a longitudinal cross-lag model, which consisted of four latent constructs at each of the two waves of measurement, externalizing and internalizing problems, and mother–adolescent and father–adolescent relationships quality. By including both externalizing and internalizing problems in the same model, the researchers were able to investigate the unique transactional effects of internalizing and externalizing problems, which is important since internalizing and externalizing problems tend to co-occur during adolescence. Moreover, the study added to previous work by taking into account the adolescents' relationships with both of their parents.

In addition, Fanti et al. (2008) focus specifically on early adolescence, since this period is considered to be a transitional period, which is associated with increases in the prevalence of internalizing and externalizing problems and relational changes, such as changes in the parent–adolescent relationship. The sample, 246 male and 253 female, was originally recruited from the sixth and seventh grades of a large public middle school in a socioeconomically and ethnically diverse metropolitan community in New York State, USA. Adolescents were followed for 2 years. The study also took into account a number of possible moderators, and more specifically gender, ethnicity (African American, Hispanic, and Caucasians), and parental marital status. The study's findings provided evidence for only one longitudinal reciprocal association between internalizing problems and adolescents' rating of the quality of their relationships with their mothers, thereby providing partial support for the hypothesized transactional association. This finding suggested that adolescents with high internalizing problems are more likely to have a negative relationship with their mothers over time, although adolescents' high-quality relationships with their mothers may act as a protective factor for the development of internalizing problems. Furthermore, one unidirectional parent-effect association was found from the mother–adolescent relationship quality to externalizing problems, suggesting that mothers may also play in important role in protecting adolescents from exhibiting aggressive and delinquent behaviors. Finally, one unidirectional child-effect association was found between the child's externalizing problems and the father–adolescent relationship quality, indicating that fathers may mainly react negatively to their adolescent children acting out behaviors. Finally, the model was generalizable across gender, ethnicity, and parental marital status.

In conclusion, Barber (1996), Patterson (1982), and Fanti et al. (2008) provide evidence for different transactional associations between adolescent behaviors or emotions and parenting or the parent–adolescent relationship. These findings demonstrate that individuals can be the active producers of their social environments in which they are situated, that is, the shared environment of parents and children. However, these studies also provide evidence for child-effect and parent-effect-only models. More studies are needed to clarify transactional and unidirectional associations between different individual and parenting constructs, including monitoring, closeness, and discipline, during adolescence.

Parental Psychopathology

In addition to parental behaviors and characteristics, parental psychopathology might also contribute to the development of maladjustment during adolescence. More specifically, maternal depression has been associated with different types of child psychopathology, including externalizing and internalizing problems. The mechanisms via which maternal depression affects

children's display of psychological symptoms are complex and understudied. It might be that maternal depression may contribute to intrusive or withdrawn parenting that initiates further disruptive, externalizing behaviors in the child, which the depressed mother has difficulty managing and experiences feelings of failure as a parent. Intrusive or controlling parenting behaviors of depressed mothers might also be associated with the internalizing spectrum of symptomatology through creating a sense of constant potential threat, lower personal control, and negative affect in the offspring. Based on the transactional model, the development of maternal depression and internalizing and externalizing problems in the child can be attributed to the continuous reciprocal influence between the child's and his/her mother's psychopathology.

Finding that maternal depressive problems influence children's internalizing and externalizing symptoms in childhood is important for understanding the causal chain leading to the child's display of psychopathology in the future. Additionally, investigating the reciprocal link between child and maternal psychopathology may help to understand possible factors that might exacerbate maternal depression. A high percentage of women are at risk of experiencing depressive symptoms, and mothers who have children with behavioral and emotional problems might be at increased risk for depression potentially due to the helplessness and feelings of personal failure associated with raising a behaviorally disordered child. According to Gross et al. (2008), it is important to investigate the reciprocal or transactional association between maternal depression and child psychopathology as they evolve across development. The child's misbehavior may influence maternal depression and fatigue, which in turn may predict more child disordered behaviors at a later time. Gross et al. (2008) investigated the transactional association between boys' externalizing problems and maternal depressive symptoms from age five to age 15 using a multi-informant procedure, including child and parent reports. The sample, which was recruited from the Pittsburgh Metropolitan area, USA, was socioeconomically and ethnically diverse. The study used a latent growth curve model and a cross-lag model to investigate the timing of effects between maternal depression and child behavioral problems. The findings suggested a transactional association between maternal depression and child externalizing problems during the transition to elementary school and during the transition to adolescence. These findings indicate that bidirectional effects might be evident in some developmental periods, but not others, and also suggest that the development of child and parental psychopathology might indeed be a product of the continuous reciprocal influence between the child or adolescent and his mother's psychopathology.

Peer Relationship

As youth move into adolescence, peers have an increasing influence on development. Therefore, it is important to go beyond the parent–adolescent relationship in order to understand the development of adjustment or maladjustment during adolescence. As with the parent–child literature, there is evidence suggesting that transactional models of development can also be applied within the peer group. For example, bidirectional associations between adolescence delinquency, such as substance use, and peer relationships have been reported in a number of studies (Sameroff and MacKenzie 2003). Moreover, as Patterson suggested, family coercive exchanges and noncompliance are related to peer rejection and to the child's inability to develop normal peer relations, indicating that antisocial behavior occurring within the family generalizes to behaviors with peers. Furthermore, a child who does not experience normal peer exchanges may not learn about empathy, altruism, and cooperation, and problematic peer exchanges may result in maladjustment. Therefore, familial processes and peer relations are interrelated, indicating that both transactional and ecological effects at the microsystemic and mesosystemic levels are in effect.

Vuchinich et al. (1992) investigated the reciprocal association between parental discipline practices, peer relations, and antisocial behavior during early adolescence using a sample of boys at high risk for later juvenile delinquency. They hypothesized that peer rejection and antisocial behavior influence each other in a bidirectional way, in that children who are rejected will be more likely to develop antisocial problems, and antisocial children will be more likely to be rejected by peers. Furthermore, they hypothesized another reciprocal association between parental discipline and antisocial behavior. The findings suggested that early adolescents' antisocial behavior had a negative impact on parental discipline practices and peer relations.

The authors concluded that "ineffective parenting and poor peer reactions elicited by the child's antisocial behavior may contribute to the maintenance of the child's antisocial behavior over time" (p. 518). Furthermore, parental discipline practices influenced antisocial behavior, suggesting that ineffective parent discipline and the child's antisocial behavior mutually maintain each other. However, peer relations had no effect on antisocial behavior. These findings provide evidence for different dynamics of the familial and peer context, and for the need to investigate both contexts together to understand the transactional association between contextual and individual variables during adolescence.

Gaps in Knowledge and Future Directions

There are a number of challenges in research on transactional processes, which need to be addressed by future research. For example, different risk and protective factors, such as genetic, psychobiological, personality, cognitive, social-emotional, parental psychopathology, familial, peer-related, school, and neighborhood, need to be taken into account. Considering these factors in isolation is not sufficient for understanding adolescents' development. As proposed by the transactional model, different predictors, social or individual, operate together to influence adolescents' development. Designing longitudinal studies with different individual and social risk factors has the power to advance the understanding of etiology and development and to provide information in terms of the bidirectional contribution of individual traits and contextual factors. Furthermore, even though transactional models of development can be applied in different social settings, researchers mainly focus on the transactional association between parental and adolescent behaviors and characteristics. However, taking into account different ecologies and the multiple social changes occurring during adolescence is imperative.

Moreover, in order to successfully investigate transactional models of development, research designs need to take into account change over time, different environmental settings, and the transactions between the adolescent and the different social settings. However, this research design comes with a number of methodological difficulties or complexities that researchers need to address. First of all, to investigate the transactional association between contextual variables and adolescents' behavior, longitudinal investigations are required. Transactional investigations that use cross-sectional data or only consider brief periods of development are not sufficient. Developmental processes are not static, and cross-sectional findings or findings from short-term investigations may provide misleading evidence. Transactionally oriented studies need to be able to identify periods of development during which change occurs and also provide information on whether transactional effects are more evident in certain developmental periods than others. Additionally, because development unfolds in different settings, researchers need to incorporate a multiagent (considering adolescent, parent, peer, and teacher reports) approach in order to measure different individual and contextual variables. In terms of data analytic tools, research questions are usually examined with linear variable-centered approaches. Even though cross-lag models are very important, they are not built to investigate the dynamic association and nonlinear association between behavior and context. More recently, the advent of latent growth models in Hierarchical Linear Modeling (HLM) and Structural Equation Modeling (SEM) enabled the estimation of the average trajectories of different behaviors and the investigation of the co-development of different domains by relating their trajectories. However, these models assume that individual curves within each domain are relatively homogeneous and that growth trajectories in the model arise from a single multivariate normal distribution, which masks the presence of distinct subgroups. Advents in longitudinal person-centered approaches, such as Latent Class Growth Analyses (LCGA), that model change over time for different groups of individuals may provide more useful information. LCGA can relate the entire longitudinal course of two variables, and provides the capacity for the joint estimation of trajectory models across the entire period of observation. For example, we might examine how maternal psychopathology and child psychopathology co-develop within a dynamic framework by taking trajectories of change into account for different groups of individuals and by investigating nonlinear change.

Future studies also need to employ longitudinal genetically informed research designs in order to disentangle the genetic and environmental contributions to adolescence development. It is possible that

genotypic variations in child behavior shape their external environment, and in turn, the changed environment influences the child's behavior over time. Thus, the child's biological predisposition may operate in conjunction with environmental factors to influence development. In support of this idea, behavior-genetic studies provided evidence for both environmental and biological effects. For example, a child's biological predisposition to develop conduct disorder will influence his/her environment negatively, providing evidence that the child is active in development. The child's difficult temperament, which is considered to be stable and biological in nature, may elicit certain reactions from the parents, which further influence the child, and the child's modified behavior may affect parenting negatively. Cross-lagged twin models that examine the reciprocal association between social and individual variables may provide information on whether contextual and individual effects are a function of both genetic and environmental effects.

There is also a need to link transactional oriented studies with prevention and intervention efforts. As already mentioned, transactionally oriented studies have the power to provide information in terms of where interventions should be directed, after taking the direction of effects into account, and in terms of when interventions should take place, after taking the timing of transactional effects into account. Furthermore, it is also of great importance that intervention studies employ the transactional model to understand how changing aspects of the child or the social agent (after applying the intervention) bidirectionally influence each other. For example, Patterson's model suggests that parental unskilled discipline practices may initiate a cycle of coercive exchanges. It may be concluded that training parents more effective discipline practices may result in reductions in the child's problem behaviors. In addition, as transactional findings suggest, for an intervention program to be successful both parent and child training need to be included. For example, child social-skills training or cognitive emotional training may be related with better adjustment, better parent and peer relations, and decreases in antisocial behavior. Intervention studies that apply the transactional model of development have the power to examine (1) how changes in parenting are related to changes in the child's behavior, (2) how child training is related to changes in parenting, and (3) how changes in both child and parental behaviors are related to adjustment. Thus, transactional models have the power to guide interventions and to provide a useful analytic tool for evaluating interventions.

In conclusion, even though the majority of research investigates unidirectional associations between contextual variables and child outcomes, evidence continues to build in support of a transactional perspective. Research has demonstrated that children influence the social context in which they are embedded, and that the social context influence children. Moreover, the adolescence period is associated with changes in different social settings and changes in the individual's emotions and behaviors. Therefore, longitudinal transactional research investigating adolescents' adjustment or maladjustment needs to take into account these changes and the interaction between different social contexts, such as the peer, school, and the home environment. In addition, transactional models of development have the power to provide information on the timing and the direction of effects, and as a result can provide a better picture of adolescent development. Furthermore, findings from transactional oriented research can provide important insights into the role of child, parents, peers, and the continuous dynamic interactions between the child and the child's social context. Finally, there is now substantial evidence that can be used to design transactional models of interventions to prevent the emergence of psychopathology.

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Transgender Youth

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Overview

This essay begins with definition and clarification of the term transgender as it applies to adolescents. Next, the standards for diagnoses and clinical treatment toward sexual reassignment are addressed. Finally, the essay examines contextual factors and their links to well-being for transgender youth. The primary contexts examined in current research include family and school environments. Issues of well-being are described with a focus on health and mental health.

Introduction

Transgender is an umbrella term to describe persons who identify with or express a gender identity that differs from the assigned birth sex (Merriam-Webster 2010). A variety of circumstances may be present for an adolescent who identifies as transgender. For instance, an adolescent may experience some desires to be like the other sex such as in clothing or other elements of presentation (hair, jewelry, etc.), but may not desire to change identity or anatomy or to live as the opposite sex. The term "transsexual" refers to a person who has an intense desire to live as the other sex and may be seeking or has already had sex reassignment, with or without sex reassignment surgery and/or hormones (SRS) (Mosby's Medical Dictionary 2009). Within the transgender community, there is often a variety and continuum of behaviors and self ascribed labels that reflect this variety of transgender identities and experiences. Some individuals may identify as "genderqueer" or as a "third gender," possessing characteristics along both masculine and feminine continuums. People may identify as cross-dressers if they occasionally dress as the other sex, and impersonators (such as drag queens and kings) if they dress as the other sex for entertainment purposes. The terms "transwoman" and "transman" (or the child/adolescent counterparts of "transgirl" and "transboy") refer to an individual's identity in living as a different sex from that assigned at birth. For purposes of this essay, the term transgender is used in its most inclusive sense to incorporate a wide variety of gender identities and expressions.

Transgender is distinguished from intersex, although some intersex individuals may also identify as transgender. Intersex, sometimes referred to as Disorders of Sex Development (DSD), is a term used to describe a variety of medical conditions in which an individual's reproductive or sexual anatomy is not typical for male or female status (Intersex Society of North America 2010).

Having a transgender identity does not imply any particular sexual orientation. Transgender persons may be predominately attracted to males, females, both, neither, or other transgender persons (Cohen-Kettenis and Pfäfflin 2010). Assumptions about a person's sexual orientation should not be made based on gender expression. The exact number or rate of youth who identify as transgender has not been established. At this point, the large, population-based studies of adolescent development do not measure transgender status, thus the prevalence is unknown.

Transition-Related Care

Gender Identity Disorder

Currently, in order to receive medical intervention for sex reassignment, individuals are diagnosed with Gender Identity Disorder (GID) using standards from the DSM IV. Revisions of the standards for the DSM V, anticipated in 2012, are under review. There are a number of clinical concerns with the current diagnostic criteria, including the heterogeneity of gender dysphoria expressions, the requirement to rule out disorders of sexual development, the requisite experience of impairment or distress that is lacking in some

transgender patients (especially those in supportive social contexts), and the continued diagnosis of post-operative transsexuals (Cohen-Kettenis and Pfäfflin 2010). The presence of diagnostic criteria can allow for greater access to treatment services toward sex reassignment, but has also promoted the idea of transgenderism as a mental disorder (much like homosexuality used to be classified). Only a small percentage of children and adolescents who qualify for a diagnosis of Gender Identity Disorder (GID) by DSM IV standards will go on to become transsexuals (Smith van Goozen and Cohen-Kettenis 2001).

Clinical Care for Sex Reassignment

Studies of transgender adolescents originally focused on debating the merits of allowing hormonal treatments and sex reassignment surgery to children and adolescents (Smith et al. 2001, 2002; Bradley and Zucker 1997; Cohen-Kettenis and van Goozen 1997). Currently, the Harry Benjamin standards of care (HBIGDA 2001), renamed in 2009 as the World Professional Association for Transgender Health (or WPATH), provide guidance for physicians treating patients with the intention of sex reassignment. These physical interventions start with fully reversible interventions such as medications to delay puberty. Secondary interventions are partially reversible and include hormones to masculinize or feminize the body. Finally, irreversible surgical procedures are employed. Concurrent social transitions involve transitioning to live full time as the desired gender. In most cases, surgical procedures are not considered until the social transition has been successful (Cohen-Kettenis and van Goozen 2002). Revisions to the Harry Benjamin standards are currently underway, and leading researchers have proposed that for children, the social transition to living in the opposite gender occur long before puberty (de Vries and Cohen-Kettenis 2009).

Most of the studies regarding SRS and its outcomes agree that adolescents completing SRS experience positive benefits and continue to express satisfaction with the decision to proceed through the transition (Cohen-Kettenis and van Goozen 1997), and may experience reduced difficulties associated with gender nonconformity (Smith et al. 2001). Postoperative anxieties and issues are often linked to concerns about the quality of the SRS, and physical functioning (Smith et al. 2002) and are not the product of increased clinical symptoms. However, these studies also caution that the decision to complete SRS in adolescents must come with careful adherence to strict criteria (Smith et al. 2001).

Contextual Issues

Studies of transgender youth have begun to incorporate an examination of the contexts in which youth develop. Because the research literature has clarified that transgender status is not a causal factor for psychological difficulties (Cohen-Kettenis and van Goozen 2002), studies of social contexts are a reasonable next step to examine why some transgender youth experience difficulties and others do not. Initial studies suggest that transgender youth may experience difficulties that are not associated with being transgender but rather stem from the difficulties of being rejected or ostracized by parents, peers, or the community.

Family Environments

Studies of family relationships for transgender youth originally focused on the concerns of parents and clinicians that parenting practices caused atypical gender expressions, and have more recently begun to document adolescents' relationships with parents (Koken et al. 2009; Grossman et al. 2005, 2006; Pusch 2005). An ongoing study of family relationships has identified both damaging and effective parenting practices for parents of transgender children (Brill and Pepper 2008).

In most studies, transgender youth have reported hostility, abuse, and rejection by parents associated with the youth's gender nonconformity (Koken et al. 2009; Grossman et al. 2005, 2006; Pusch 2005). Youth who report earlier expressions of gender nonconformity also report greater abuse from parents (Grossman et al. 2006). Transgender youth were more likely to list friends than parents as sources of emotional or instrumental support (Garofalo et al. 2006). Some parents are reported to have ignored or dismissed the disclosure of transgender status (Pusch 2005). Many transwomen report having been forced out of their homes as adolescents because of their transgender status (Koken et al. 2009).

The Family Acceptance Project (Ryan et al. 2009) has begun to identify both damaging and effective strategies for parents of transgender youth (Brill and Pepper 2008). Damaging practices include

assumptions of defiance in gender expression, abuse, exclusion, blocking access to resources, blaming youth for the discrimination they face, ridicule, religious condemnation, denial or shame, secrecy, and enforced conformity. Effective or powerful strategies include a supportive family environment, negotiating differences among the parents, requiring respect in the family environment, loving and supporting the gender expression of the transgender child, disregarding gender stereotypes about clothing and items, advocating for the safety of the transgender child, and providing open communication. While these strategies have not yet been linked to improved well-being or reduced risk taking specifically among transgender youth, they have been associated with improved outcomes for lesbian, gay, and bisexual youth (Ryan et al. 2009).

School Experiences

A growing body of literature documents experiences of harassment at school for transgender youth. In US studies, transgender adolescents report pervasive harassment in school environments from other students (Grossman et al. 2009; D'Augelli et al. 2006; Graytak et al. 2009) and school personnel (Graytak et al. 2009; Grossman and D'Augelli 2006). Most studies of school harassment have found that 80% or more of transgender students report harassment (Graytak et al. 2009; Sausa 2005; McGuire et al. 2010) including being the target of rumors (Graytak et al. 2009), the object of hate speech (Grossman et al. 2009), and physical harassment (Graytak et al. 2009; D'Augelli et al. 2002). Transgender youth consistently report feeling unsafe at school. Transgender youth who present with greater gender nonconformity report increased victimization at school (D'Augelli et al. 2006; D'Augelli et al. 2002). School personnel have exacerbated transgender youths' distress by using students' given [birth gender] names rather than their preferred [identified gender] names (Grossman and D'Augelli 2006), coaching students to act like their birth gender (Sausa 2005), making sexually harassing comments and gestures (Sausa 2005; Grossman and D'Augelli 2006), or mocking and name-calling transgender students (Grossman and D'Augelli 2006). It is unknown to what extent these findings are culturally specific to the USA, or limited to adolescence. One recent study found that gender nonconforming children in the Netherlands did not experience significantly more bullying or victimization than their gender conforming peers (Wallien et al. 2010).

The long-term impacts of school harassment are not well documented specifically for transgender youth. However, transgender youth have reported increased likelihood of transferring schools (Grossman and D'Augelli 2006), academic difficulties, school absence, and dropping out (Sausa 2005; Burgess 1999; Grossman and D'Augelli 2006). Further, school attendance and academic achievement have been linked to levels of harassment among transgender youth (Graytak et al. 2009).

Health and Mental Health

Medical needs are a common theme in the transgender literature. Whether it is assistance in the transition from one sex to the other or treatment for basic medical conditions, transgender youth face unique challenges when it comes to medical needs. There is some research available that indicates male to female (MTF) transgender youth are at an increased risk for contracting HIV/AIDS, including high rates of unprotected anal receptive intercourse, sex in exchange for resources, and experience of forced sexual activity (Garofalo et al. 2006). To further compound this problem, youth often report a lack of safe environments and access to health services, restricted options for their mental health concerns, and a lack of health care support from their family and friends (Grossman and D'Augelli 2006). Transgender youth have reported feelings of cultural displacement when dealing with medical professionals who generally have no experience dealing with the transgender population and their specific health concerns (Garofalo et al.). Doctors may lack the vocabulary to adequately understand what transgender youth face with regard to their unique health needs. Additionally, transgender youth have reported difficulty in accessing the hormones required for their transition from one sex to the other (Grossman & D'Augelli 2006). Transgender youth are at an increased risk for a number of negative health symptoms, but often do not experience adequate medical care or professional rapport to meet their medical needs.

Studies of mental health among transgender youth have found mixed results. Some transgender youth face significantly more mental health difficulties and engage in more risk taking than their gender normative peers. It is not known why transgender youth vary in their risk

taking and mental health outcomes, with some experiencing significant adjustment difficulties and others avoiding excessive risk taking and negative mental health experiences. Several studies have documented higher rates of depression, general anxiety, and separation anxiety among transgender youth (Bradley and Zucker 1997). However, because a clear and accessible population of transgender youth is not well defined, sampling issues continue to limit the generalizability of studies estimating rates of psychological conditions. Furthermore, it is unclear if psychological conditions such as anxiety or depression are associated with transgender status, or stem from the well-documented discrimination, harassment, and rejection experienced by transgender youth. In one study, adolescents eligible for SRS did not score in the clinically significant range on the Child Behavior Checklist (CBCL) when assessed by parents (Cohen-Kettenis and Van Goozen 2002). In some cases, a child's clinically significant diagnoses could be linked to family problems that were in response to the child's gender nonconformity.

Cross-References

- ► Bisexuality
- ► Sexual Minority Youth
- ► Sexual Orientation and Identity Labels

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Transitioning from Care

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Overview

The purpose of this essay is to review the state of the research on older foster care youth nearing their exit from the child welfare system, while honing in on the burgeoning research on supportive relationships for these young people as they leave the formal care system. In the past decade, researchers have laid out quite convincingly the difficulties these youth face (See Courtney and Heuring 2005 for a review). The focus of this essay is on one strategy to improve these documented difficulties that has gained momentum, namely supportive relationships with important adults and/or mentors during the transition from care (e.g., foster care, juvenile justice, public welfare).

Imagine that you are removed from your mother and/or father's home because of their inability to take care of you when you are young. Then imagine that you become part of a foster family that decides when you are in elementary school that you have too many difficult emotional and behavioral problems to manage. Imagine then that you have to leave them, the only "family" you have known, and move into a group home. Finally, as you turn 18, you are informed by a judge that you are an adult and that you no longer are a part of the foster care system. When you ask what does that mean, you are told that you no longer need to come to the agencies that have been involved in your life for months, or even years. If you stop and think about any of these transitions, they are almost unbearable. Yet hundreds of thousands of American youth take a path similar to this one as they meander through childhood and adolescence. The purpose of this essay is to present a brief summary of some of the policies and programs developed to assist older foster care youth as they transition from care, while reviewing the state of the research on supportive relationships between young people as they transition from child-serving systems of care toward adulthood and those that care about them.

Adolescence to Adulthood

Leaving adolescence and becoming an adult can be both exciting and stressful. In today's social world, young people transitioning toward adulthood are receiving more help from their parents, when compared to past generations (Furstenberg et al. 2005). Imagine, then, the stress level for older youth in foster care, many of whom make this difficult life transition with limited family support and very few resources (Britner and Kramer-Rickaby 2005; Collins 2001). By nature of entering foster care, these youth have experienced stressful life events, such as removal from home, stress related to being in the system, and in many cases they have been exposed to prolonged abuse and/or neglect as well as other forms of violence. When transitioning from care, things may be even more difficult, as these adolescents may be expected to leave relationships and services that they have depended on for care. It remains somewhat unclear how foster care alumni get the emotional support, resources, and social connections necessary to become healthy and fulfilled productive adults. Both child and adult systems of care must continue to focus on the needs of this vulnerable population and how to help them.

Former Foster Care Youth's Young Adult Life Outcomes: A Significant Public Health Concern

In 2006, approximately 220,000 adolescents, ages 12–20, were in foster care, and age 16 was the age evidencing the greatest number of children in care (United States Department of Health and Human Services 2008). Furthermore, over 26,500 older youth exited care through the emancipation process, which refers to both the emancipation of minors and youth who age out of foster care between 18 and 21, during

that same year (USDHHS 2008). Research has shown convincingly that exiting care is a complex and difficult life transition for adolescents. As chronicled by the Public Broadcasting Service (PBS) and their ground breaking documentary, *Aging Out*, which brought national attention to the plight of transitioning foster youths, a host of negative outcomes among transitioning foster youths exist. Courtney et al. (2005) found that in comparison to a nationally representative sample of 19-year olds in the Continental United States, 19-year old, former foster care youths were less likely to have a high-school diploma or GED, less likely to be currently employed, more likely to have at least one child, and more likely to be the victims and perpetrators of violent acts. McMillen et al. (2005), in a study of older foster youths in the state of Missouri, found that 61% had a psychiatric disorder based on DSM-IV diagnostic criteria. This is consistent with research showing that the rates of emotional and behavioral problems among foster care youths are significantly greater than youth in other high-risk populations (Kortenkamp and Ehrle 2002; Pilowsky 1995). In the same study by Courtney et al., they found that 19-year olds no longer in foster care had higher rates of recent alcohol abuse, substance dependence, and substance abuse based on DSM-IV diagnostic criteria than their counterpart's still in foster care. Hence, the need for formal and informal support systems and continued transitioning services for older youth who have exited foster care cannot be overstated.

Policies and Programs

Since the 1980s, great strides have been made in the movement toward advancing policy to extend services, and in many cases, introduce new services and supports for youth transitioning from care toward more independent adulthood. In 1986, the passage of an amendment to Title IV-E of the Social Security Act established the federal Title IV-E Independent Living Initiative. This Initiative funded Independent Living services for youth in foster care in all 50 states and the District of Columbia. The services were focusing on the increased numbers of youth leaving foster care, but maintaining dependency on the state through welfare program eligibility. The act was ratified in 1990 to extend services to foster children "aging" out of care until age 21 (Bussey et al. 2000). In 1999, the Foster Care Independence Act was passed by the United States Legislature, which created the John H. Chaffee Foster Care Independence Program, Section 477 of Public Law 106–169 (Foster Care Independence Act of (1999)). This program provided grants to states to provide enhanced support for Independent Living services. The services include vocational training, living support, educational vouchers, and continued Medicaid coverage to foster youth. Mallon's evaluative outcome study (1998) that examined all youths discharged to independent living from December 1987 to December 1994 in a New York City-based independent living program indicated that the program improved the ability of youth to be self sufficient at the time of discharge from out-of-home care. Independent living programs have offered critical services necessary to manage adulthood, yet they do not focus on the continuation of supportive relationships or the extension of new social supports during the transition to adulthood. The latest achievement for children and youth in foster care is the Fostering Connections to Success and Increasing Adoptions Act of (2009). This law provides new supports and services to promote permanency and improved well-being of older youth in foster care, including: allowing states an option to continue providing Title IV-E reimbursable foster care, adoption, or guardianship assistance payments to children after the age of 18; a requirement that personal transition plans for youth aging out are developed within 90 days prior to youth exiting foster care; extending eligibility for independent living services to children adopted or placed in kinship guardianship at age 16 or older; and extending eligibility for education and training vouchers to children who exit foster care to kinship guardianship at age 16 or older (those adopted after age 16 were already eligible) (www.fosteringconnections.org). In addition to these specific policy changes, the name of the new law, Fostering Connections, indicates a philosophical shift in policy from the previous emphasis on independent living. Federal policy now recognizes that in order for youth aging out of foster care to be successful, they need both independent living skills and connections to family members and other supportive adults.

Supportive Relationships with Adults

Supportive relationships between those transitioning from foster care and the supportive adults in their lives, both family members and unrelated, or non-kin adults, are receiving increased attention in the behavioral health-practice community and in research. Studies focused on supportive relationships, more generally, along with studies of mentoring have been on the rise.

This is not a new idea; indeed leaders in the field have been pointing to important adults in the lives of resilient individuals for decades, including maltreated individuals (Werner and Smith 1992); however, of late, there has been an increased interest in this topic. Further, recently, Kaufman et al. (2004) found that, among maltreated youth, positive social supports reduced the risk associated with a specific genetic profile related to depression. This new biological research adds support to the potential for relational interventions among maltreated youths. Federal legislation and funding initiatives for mentoring have been increasingly discussed and debated. This essay reviews the theoretical and empirical research on supportive relationships with both relative and nonrelative adults.

Theory

Theories postulate that supportive relationships provide benefits through a variety of mediating processes, such as changes in social and emotional development, cognitive development, and identity development, and, in some cases, all of these processes at once (i.e., Rhodes 2002). To date, very few studies have empirically tested these pathways (e.g., Parra et al. 2002; Rhodes et al. 2000). This important gap in the literature remains to be filled. The model offered by Jean Rhodes, described above, has provided a parsimonious and clear conceptualization for researchers to move forward the understanding of these relationships through additional empirical investigations of the varying mediating pathways, or process by which mentoring relationships make an impact in the lives of young people. It is also important to note that the process by which supportive relationships make an impact are often specific to a particular program model and/or the needs and desires of the individuals in the relationship.

Empirical Studies

Supportive Relationships with Biological Family and Extended Relatives

For foster care youth, relationships with family are complex, as many have had difficult experiences within these relationships, experiences that have resulted in their removal from home. However, research has shown that older foster care youth remain in contact with their biological family and often return to them after leaving care (Collins et al. 2008). A recent study by Gina Samuels discussed the important supportive relationships among young adults that had left care (Samuels 2008). She found that participants had an existing support network, and one of the typical compositions of the network was adult biological family members. She also suggested that the role of biological family must be extended beyond official or legal status in a youth's permanency plan because biological family remains psychologically present for participants despite their physical separation. In another study, Samuels and Pryce (2008) indicated that young adults have an inclination to provide rather than receive aid from their biological parents. In the study, youth who maintained connections to their biological family systems often provided a range of supports to their younger siblings, grandparents, and even their own parents. Youth noted rejecting parental offers of support and instead felt more secure in the role of provider. Understanding the nature of family support for older youth exiting care is essential, particularly if and how it influences their lives in adulthood.

Natural Mentoring Relationships Between Foster Care Youth and Unrelated Adults

For children and youth with histories of risk, including abuse, natural mentoring relationships may also be important for positive development, as there may be an increased need for secure, safe connections with adults. One seminal study revealed that among maltreated youths in Hawaii, those with supportive adults in their lives did better when they reached adulthood, particularly with regard to establishing their own supportive connections with significant others (Werner and Smith 1992). Further, compelling journalistic reports uncover that transitioning foster care youth are engaged in key supportive relationships with nonparental adults during their transition to adulthood (Shirk and Stangler 2004).

Of late, there has been a series of research studies on older foster care youth nearing the transition and the natural mentors in their lives. The first author of this essays' dissertation study was the first study on natural mentoring relationships among older youth exiting foster care and the unrelated supportive adults in their lives (Munson 2005). In this study, natural mentors were defined as "an adult who is not related to you, that is older than you, and is willing to listen, share his or her experiences, and guide you through some part or area of your life." This definition was modified from

previous research on mentoring (Rhodes 2002). Results from this study suggest that foster care youth report the presence of a natural mentor at about the same rate as youth in the general population, specifically 62% of the 339 youth nominated an adult that met the aforementioned definition (Munson and McMillen 2008). Additional studies have now reported similar prevalence rates of natural mentoring relationships among older youth in foster care (i.e., Collins et al. 2010).

Further, a few recent studies have suggested that the presence of a natural mentor, a caring adult, is associated with positive outcomes for older foster care youth. Munson and McMillen (2009) reported that older youth in foster care that had the same natural mentor in their lives from age 18 to 19 reported less perceived stress and a lower likelihood of having been arrested, at 19, when compared to those not engaged in such a relationship. Another study found that foster care youth with natural mentors reported less suicidal ideation, better overall health, fewer sexually transmitted disease diagnoses, and less involvement in fights in which they hurt someone than those without a natural mentor (Ahrens et al. 2008).

Qualitative studies have also begun to offer additional understanding of mentoring relationships that older youth exiting foster care are engaged in and what it is about them that matters to youth. For example, Munson et al. (2010a) reported that among 189, 19-year old youths aging out of foster care, natural mentors served in a range of roles, including providing services and varying types of support. These older youth also described that consistency, authenticity, and sharing similar pasts mattered to them in their natural mentoring relationships. They reported that mentors offered them emotional support, tangible help, and advice on many aspects of their lives. Another study of youth who recently transitioned out of foster care found that the key characteristics of the supportive people in their lives were their acceptance of the young person, constant encouragement, reliability, and the ability to provide assistance when needed (Collins et al. 2010). Yet another study recently examined the qualities of natural mentoring relationships among seven adolescent females in foster care and found that trust, love, caring, and experiencing a natural mentor as being like a parent were salient characteristics endorsed by participants (Greeson and Bowen 2008). Similar to Munson et al. (2010a), they found that different types of social support from natural mentors were important to the older youth, such as emotional support, informational support, and appraisal support.

Mentoring Programs and Foster Care Youth

In addition to natural mentoring, structured mentoring programs are increasingly being developed for this population. Rhodes et al. (1999) published the first investigation on the impact of a mentoring program, specifically the Big Brothers Big Sisters (BBBS) program, on peer relationships among a subset of youth living in foster care placements. They reported that foster care youth in the mentoring condition improved significantly with regard to self-esteem, while youth in the control group showed worse outcomes over time. This study suggests BBBS, a specific manualized mentoring program, may improve social and psychological outcomes for youth in foster care. Research is needed to examine whether or not structured mentoring programs are related to positive outcomes for older youth transitioning from care.

The specific structure of mentoring programs (i.e., site based, community based, skills based) varies, but programs with mentoring as a core component for these older youth exiting foster care are proliferating. In Cleveland, Ohio, for example, the YWCA has developed a program called "Nurturance, Inspiration, and Aspirations," also known as NIA, which combines education, parenting classes, and life-skills training with a goal of also providing supportive relationships within the program milieu. Other programs are developing that utilize a more traditional matched dyad structure modeled after BBBS, matching foster youth in transition with adult volunteers to create new relationships to provide support and guidance. Within these varied approaches lies a common assumption, supportive adults that care for youth in transition from foster care services provide something vital, something more than information and skills, they provide a consistent connection to another caring human being.

Important to note, an article coming out in *Social Work* articulates the possibilities and pitfalls of youth mentoring for older youth in foster care. Spencer et al. (2010) clearly elucidate the potential for this approach, alongside some of the factors that may make this approach to intervention difficult for older youth exiting foster care. Specifically, they suggest, given the transitory nature of the lives of youth as they move out

of the foster care system, a close and enduring relationship with a previously unknown adult mentor may be difficult. They also suggest that because youth mentoring programs are diverse in their form, setting, tasks, and goals, in order to facilitate successful implementation of programs, thoughtful and professional program administration is needed. In addition, because good mentoring programs are expensive in recruitment, assessment, training, supervision, monitoring activities, as well as the provision of resources, this raises concerns about whether or not there will be a level of commitment to ongoing funding that would support the relationships over time for youth leaving care.

Preliminary Findings from "Making the Transition"

The authors of this essay are conducting a 2-year mixed-methods study in Ohio on the life experiences of former system youth, defined as those with childhood histories that include engagement with public systems of care (e.g., foster care, juvenile justice, public welfare). All participants are between ages 18 and 30, have a childhood history of a mood disorder diagnosis, use of public mental health services (Medicaid-funded), and at least one additional child-serving systems of care (Mean # of systems = 3.33, $N = 40$) (Munson et al. 2010b). One area of inquiry in this study is an in-depth look at the social networks of these young adults, along with the presence or absence of a "key helper," defined as "an adult that has been particularly helpful, in some way, in helping you make the transition to adulthood with your mood/emotional problems. Someone who listens provides guidance, and/or some type of advice and support." Thus far ($N = 40$), it has been found that the size of the young adult's social support network is between 0 and 22, with a mean number of 9.05 individuals. Thirty-nine percent of the network members involved in the day-to-day lives of these young adults were biological or adoptive family (including extended family, such as aunts and cousins), followed by friends (22%) and professionals (15%). Interestingly, family were the network members to provide the most concrete, emotional, and informational support; however, many young adults report that they hardly ever talked with these same family members about their mood and emotional problems. For these types of concerns, the former system youth reported that they talked mostly with professionals (Kim et al. 2010). With regard to having a key helper, thus far 87.5% have reported the presence of a key helper meeting the aforementioned definition. Twenty-five percent are professionals, 12.5% are parents, and 12.5% are boy/girl friend or husband/wife. Future projects from this study include examining the nature of these relationships further, along with exploring the dyadic nature of a small subset of the relationships, including data from interviews with both the young adult and their nominated key helper.

Conclusion

There is little disagreement that social support through caring relationships is needed for all young adults as they move toward adulthood. Transitioning from systems of care, such as foster care, intensifies the need for such relationships, as disruptions in established social networks commonly occur, and there is often less familial support and resources available to these vulnerable youth. As this field moves forward, professionals need to continue to listen to the experiences of young adults themselves and listen to the types of support and relationships that they perceive to be most helpful. This approach, working collaboratively with transitioning youth, will ultimately lead to informed intervention approaches for older youth transitioning from care. With the emergence of policies that allow youth to receive support longer (past 18), it may be prudent for professionals to consider incorporating new approaches to facilitating the inclusion of supportive relationships into programs and services, while also continuing to investigate the effectiveness of these approaches.

Cross-References

► Foster Care

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Transsexualism

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Transsexualism involves adopting the role of the opposite sex. The adoption of that role can vary; at one side of the

spectrum, it can include the wish to be considered a member of the opposite sex while, at the other end of the spectrum, it can include hormonal and surgical treatment aimed at acquiring the characteristics of the opposite sex. Transsexualism also can refer to the process of undergoing a sex change, with a person who has undergone that change generally known as a transsexual. Research relating to transsexualism during the adolescent period has focused on gender identity disorders (see Zucker 2004, 2005). This approach, however, has garnered considerable controversy regarding the appropriateness of applying the diagnosis to children and adolescents (see Hill et al. 2005). The term transsexual is to be distinguished from transgender in that transgender refers to a sense that one's gender identity does not match one's assigned sex and it may include overlapping categories, which may include transsexual but also several other transgender identities.

Cross-References

► Gender Coding
► Gender Identity

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Triangulation

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Although the term triangulation often is used in the social sciences to describe the use of multiple methods to understand a phenomenon (see Moran-Ellis et al. 2006), the term's use in the study of adolescence more generally refers to it in the context of familial relationships. Triangulation is said to occur when two family members seek to dissolve stress and tensions between themselves by bringing in a third member (Charles 2001). This area of research derives from family systems theory (Minuchin 1974; Bowen 1978). Bowen's theory, for example, posits that parents experience marital tensions and conflict due to anxiety and difficulties with balancing intimacy and autonomy needs and that parents reduce these tensions by including children into the strife. The need to negotiate between parents and manage conflicting loyalties created by boundary violations places youth in confusing and distress-provoking situations that can contribute to negative developmental outcomes (Amato and Afifi 2006; Jacobvitz et al. 2004).

Research in this area can focus on how the parents enlist children by requiring them to take sides and minimize conflict between the parents, on the children's experience of being torn between two parents and being forced to take sides, and on the outcomes of triangulation. These three potential areas of research have been the subject of important findings. For example, important research does reveal how adolescents do get involved in triangulation and some of the most robust findings relate to the effects of triangulation on children's outcomes. Notably, adolescents who feel greater threat during parental conflicts also experience increases in triangulation over time, which also associates with increased self-blame and diminished parent–adolescent relationships. Conflicts that adolescents experience as persistent, hostile, and unresolved are more likely to draw adolescents into them (Fosco and Grych 2010). The diminishing of the parent–adolescent relationship is important to emphasize in that it highlights how triangulation results from dysregulated and poorly managed conflicts between parents rather than exceptionally close adolescent-parent relationships. The diminishing of the parent–child relationships and self-blame, among other results of triangulation, help explain how marital conflict serves as a risk factor for poorer adolescent functioning that can take the form of internalizing problems such as anxiety, depressive symptoms, and social withdrawal (Gerard et al. 2005; Jacobvitz and Bush 1996; Wang and Crane 2001). Importantly, the social withdrawal includes relationships with peers. Triangulation associates negatively with perceived support from friends and positively with perceived peer rejection (Buehler et al. 2009). Although much of the research in this area is recent, the research that does exist confirms the important role that triangulation can play in family relationships and adolescents development.

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